CropAlert® Growing Conditions Report

June 2017

AIR WORLDWIDE®

INTRODUCTION

We are pleased to provide you with the first CropAlert® Growing Conditions Report of the 2017 season. CropAlert is produced on a monthly basis between June and October and provides a current estimate of future U.S. corn and soybean yields based on season-to-date weather observations; reports of hailstorms and the resulting crop damage in the U.S. and Canada, as well as modeled loss estimates when warranted; and current growing conditions and weather events affecting the China MPCI Program and modeled loss estimates when warranted.

At this time we provide you with our 2017 baseline yields for corn and soybean, and the first estimate of our corn and soybean yield models, which reflects where we stand with respect to current weather impact on crop development and potential impact on end-of-the-season yield, as of June 17. We will compare our yield baseline with the U.S. Department of Agriculture-World Agricultural Supply and Demand Estimates (USDA-WASDE) yield projection.

U.S. MPCI

CROP YIELD MODELING AND TREND LINE PROJECTIONS

In the **2014 June CropAlert report** we demonstrated the difficulty of estimating yields with a linear regression based solely on historic yields. For our first issue of CropAlert this year, we revisit the linear trend models we previously discussed and we include the now known yield values for 2016. We also review the Westcott and Jewison (WJ) weather-detrending model for corn and soybean referenced by the USDA in their WASDE corn and soybean yield projections.

YIELD PREDICTION USING DIFFERENT HISTORICAL YEARS

In the 2014 to 2016 June CropAlert reports, we provided a number of linear estimates of the projected corn yield based on linear regressions over varying periods of national end-of-season yields. Those estimates are updated in Table 1 to 2017. The updates include the impact of the 2016 end-of-season yields (where appropriate) and estimation of the yield in 2017 from each trend by extrapolation.

Table 1. Linear predictions of 2017 corn yield based on different annual ranges.

Years Used	1990–2010	1990–2011	1990–2012	1990–2013	1990–2014	1990–2015	1990–2016
2017 Estimate (bushels/acre)	175.7	172.2	163.9	164.3	166.5	167.6	169.1

There is an obvious impact that the years included have on the estimation, and much of the indicated variation is due to weather. The ideal trend for estimating the next year's projected yields should not include weather effects (which might vary dramatically from year to year) but should include only factors such as technological change, land use, and farming practices, which are expected to remain constant or change more predictably year to year. Removing the weather impacts and creating a weather-detrended trend line is the goal of the yield modeling efforts by AIR, USDA, and others.

USDA-WASDE AND THE WESTCOTT AND JEWISON (WJ) WEATHER-DETRENDING MODEL

In the May 10, 2017, USDA-WASDE corn and soybean yield prediction report, the Westcott and Jewison (WJ) weather-adjusted trend model is cited as the means of arriving at the projections of yield before other survey- or field-based indicators are available.[1]

AIR used one variation of the WJ model for corn and soybean from the paper cited by the USDA-ERS. To predict national yields, the WJ model uses five weather-related variables: planting progress on May 15; June precipitation; July precipitation; the square of July precipitation; and July temperature. The resulting regression is used to derive a straight-line trend that has had the impacts of weather removed and, ideally, indicates only factors such as technological progress, land use, and farming practices.

The AIR variation of the WJ model to estimate the 2017 national corn yield incorporates updated weather and yield data since 2014 but retains the 10-year average of mid-May planting progress (80%) used by WJ in estimating the trend of their original model. Coefficient values were recalculated using all updated data, and the trend line was estimated using the new coefficients, the new weather-related variable averages, and the 80% mid-May planting progress. The WJ soybean model was used to predict the 2017 national soybean yield with updated 2016 data and coefficients.

In addition to the weather-detrended estimate, the WJ paper explains that an adjustment should be applied to the trend line to compensate for the impact on expected yield value of the nonlinearity due to the square of the July precipitation being used as one of the predictors. In the original paper, they approximated this adjustment in 2013 as -0.65 bushels/acre for corn and -0.09 bushels/acre for soybean. This amount was to be subtracted from the intercept of the weather-detrended trend line. Although a similar approximation might yield slightly different results for 2017 data, the impact would be very small and 2013 values of these factors were used to adjust trend lines. Results (with this adjustment) are shown in Table 2 for corn and in Table 3 for soybean, along with the latest WASDE report values.

Table 2. Corn yield projections for 2017.

Source	2017 Trend Yield (bushels/acre)
WJ 2017 (with 80% mid-May planting)	170.8
WASDE (May 10, 2016)	170.7
WASDE (June 10, 2016)	170.7

[1] Westcott and Jewison. Weather Effects on Expected Corn and Soybean Yields, USDA-ERS July 2013 www.ers.usda.gov/publications/fds-feed-outlook/fds-13g-01.aspx

Table 3. Soybean yield projections for 2017.

Source	2017 Trend Yield (bushels/acre)
WJ 2017 (with 80% mid-May planting)	47.7
WASDE (May 10, 2016)	48.0
WASDE (June 10, 2016)	48.0

It is apparent from Table 2 that the WJ corn model, as AIR has interpreted it, does a good job of replicating the WASDE projected yields. The soybean model does not perform as well in terms of replicating the WASDE projection. These small differences in yield are influenced by the data used to model these crops and the year to which the model has been updated, which may differ slightly from the WASDE choices.

AIR CORN AND SOYBEAN YIELD ESTIMATES FOR 2017

The AIR methodology to establish a trend line for corn and soybean is based on the Agricultural Weather Index™ (AWI™), which first establishes the contribution of weather to the actual low yields of the last years and then determines the trend line from a "weather-corrected" yield time series that is more representative of current technological improvements than the original observed yield time series.

The AWI model is a bit more complex than the Westcott and Jewison model referenced in the USDA-WASDE reports, as it allows for nonlinear trends. And most importantly, the AWI model is built on a county-by-county basis, whereas WJ used an eight-state weighted-average weather data set.

AIR BASELINE

Utilizing AIR's AWI weather-based modeling technology, the AIR baseline trend yield for 2017 is **170.1 bushels/acre for corn and 48.8 bushels/acre for soybean.**

CURRENT GROWING SEASON AND AIR ESTIMATES TO DATE

One of the most notable changes in 2017 at the start of the season was the good soil moisture across the United States. California in particular saw plenty of winter and early spring precipitation, eliminating the drought conditions in most of the state. Along the southern borders of California and Arizona, dry conditions continue to persist. Most recently, some drought conditions have presented in North and South Dakota. These states hold about 17% of corn and soybean insurance premium annually. Likewise in Texas, record high temperatures were recorded in the past week.

In the Corn Belt, early spring precipitation kept soil moist; by early June, conditions were favorably moist. In the mid-South and lower Midwest, May showers in combination with late April precipitation caused lowland flooding, resulting in poor crop establishment in some areas. With excess precipitation, plants develop shallow root systems, which can be problematic during the growing season if the plant cannot access water deeper in the soil during summer dry spells. As a result of the flooding, the condition of 17%

of Indiana corn, 11% of Illinois corn and 10% of Ohio corn was rated very poor to poor in the June 9, 2017, USDA Crop Production Report.[2] Temperatures in May were lower than average across much of the U.S. However, in the past week, temperatures have risen, including a recent streak of high temperatures in the Corn Belt. Much of the outlook in these areas continues to be favorable.

Given the weather that the young corn and soybean crops have experienced so far, our current yield estimates based on weather experienced so far are **170.3 bushels per acre for corn and 48.8 bushels per acre for soybean**. These values will change depending on the weather conditions for the remainder of the growing season. The most critical part of the growing season is still ahead.

IMPACTS TO CROP INSURANCE

For the 2017 crop year, the planting price for corn revenue policies was $3.96, and for soybean policies $10.19. Prices for the December corn future went up in anticipation of the June WASDE report. Currently, December corn is priced at $3.89. EU and Canada corn production have both been lowered based on smaller planted areas and also production issues in Canada. However, Russia and Ukraine are expected to increase exports this year. November soybean is currently priced at $9.39. The soybean price declined after the price discovery period, but has been trending upward since the beginning of June. Brazil increased harvested acreage in soybean and is expecting to increase production in the 2017 year. If the U.S. has an average yield year, we may still see some revenue policies trigger if these prices persist. Nevertheless, prices fluctuate considerably over the course of the growing season, due not only to U.S. production, but also to worldwide stocks and trade agreements. We will continue to monitor these conditions going forward along with U.S. yield projections.

[2] http://usda.mannlib.cornell.edu/usda/current/CropProd/CropProd-06-09-2017.pdf

U.S. CORN AND SOYBEAN YIELD FORECASTS FOR WEEK OF JUNE 17, 2017

CORN				
State	AIR	AIR	WASDE	WASDE
	Current yield projection* Valid through June 17, 2017	Percent of normal yield Valid through June 17, 2017	Yield forecast: May, 2017	Yield forecast: June, 2017
IL	184.4	100.1%	-	-
IN	171.8	100.9%	-	-
IA	187.8	100.5%	-	-
MN	184.0	100.2%	-	-
MO	148.2	100.5%	-	-
NE	178.0	99.5%	-	-
OH	172.6	100.2%	-	-
WI	158.8	100.3%	-	-
US	170.3	100.1%	170.7	170.7

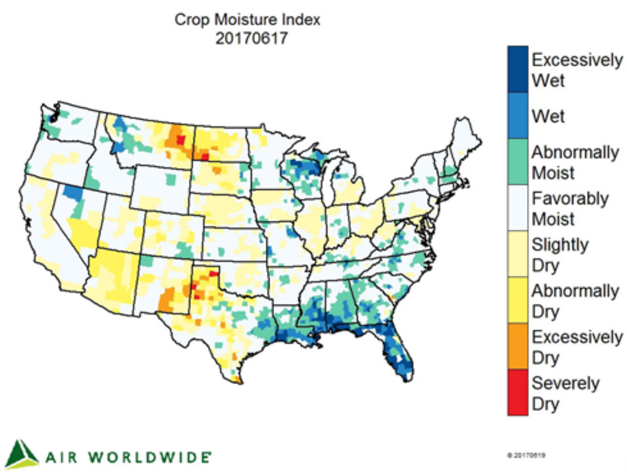
SOYBEAN				
State	AIR	AIR	WASDE	WASDE
	Current yield projection* Valid through June 17, 2017	Percent of normal yield Valid through June 17, 2017	Yield forecast: May, 2017	Yield forecast: June, 2017
IL	54.6	99.5%	-	-
IN	54.4	100.4%	-	-
IA	54.4	99.5%	-	-
MN	46.4	100.0%	-	-
MO	44.4	99.8%	-	-
NE	57.7	100.0%	-	-
OH	52.9	99.8%	-	-
WI	46.2	100.2%	-	-
US	48.8	100.0%	48	48

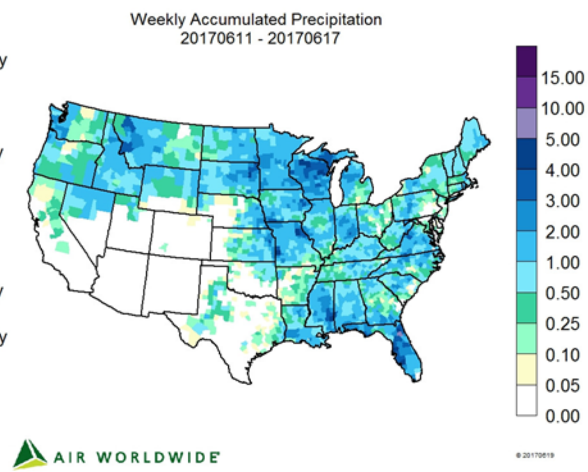
* Current Projection: Yield predictions based on observed crop growing conditions to current date

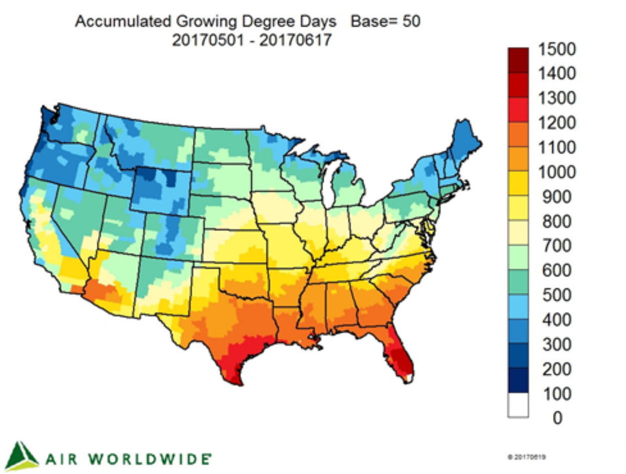
Disclaimer: Predicting weather and growing conditions is an inherently subjective and imprecise process, involving assessment of information that comes from a number of sources and that may not be complete or accurate. AIR makes no warranty, express or implied, with respect to the information in this report, including any warranty of merchantability or fitness for a particular purpose or use. Past performance is not necessarily indicative of future performance. Readers use the information at their own risk.

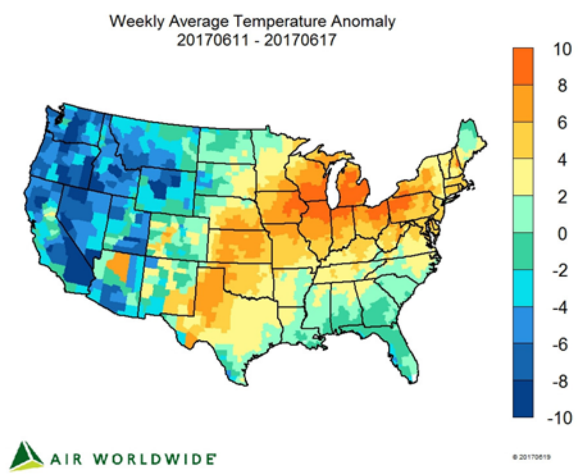
THIS WEEK'S OBSERVED CROP GROWING CONDITION

(VALID FOR THE WEEK ENDING JUNE 17, 2017)



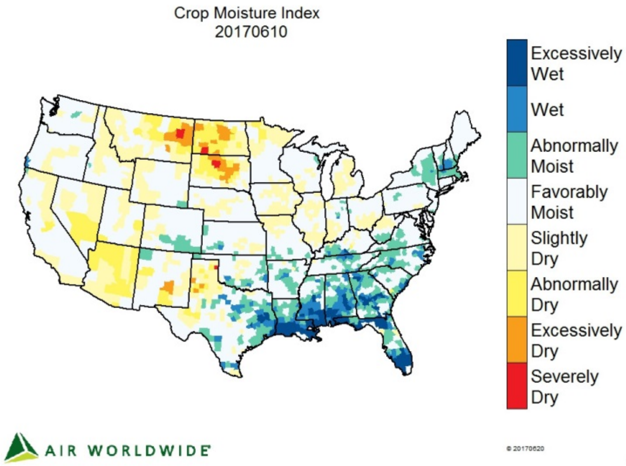


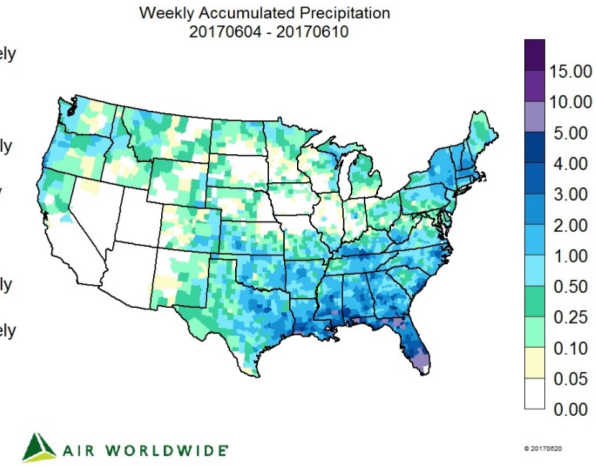


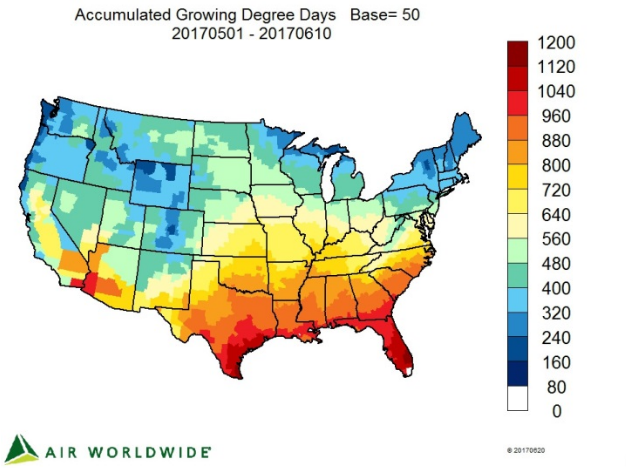


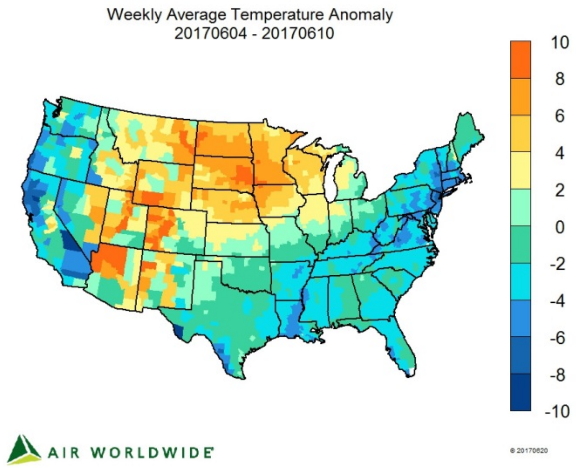
LAST WEEK'S OBSERVED CROP GROWING CONDITION

(VALID FOR THE WEEK ENDING JUNE 10, 2017)



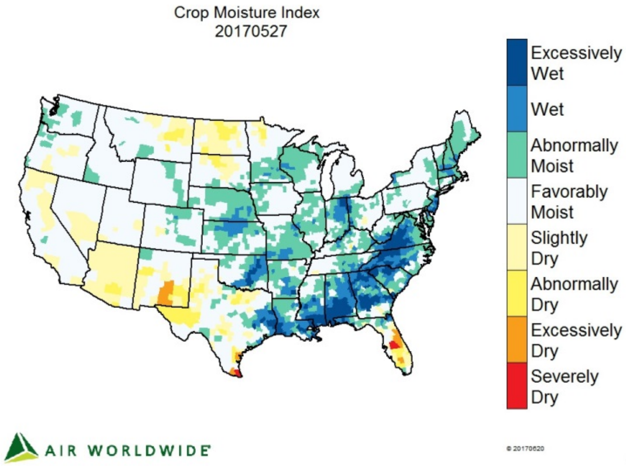


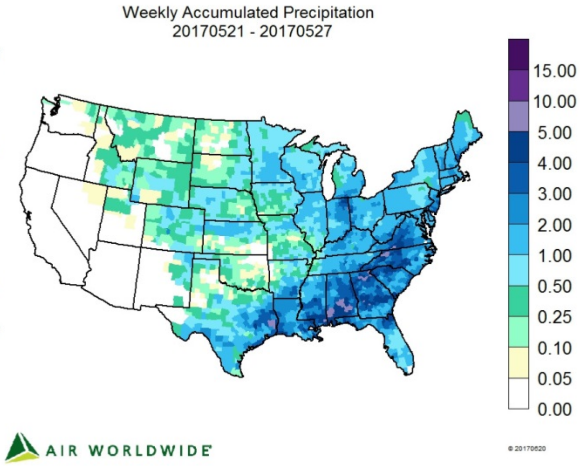


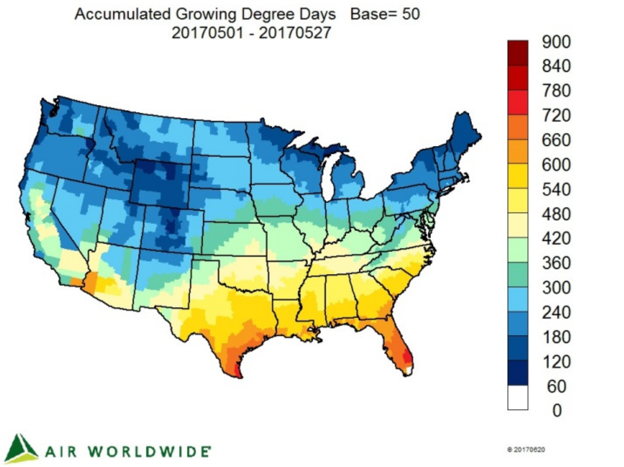


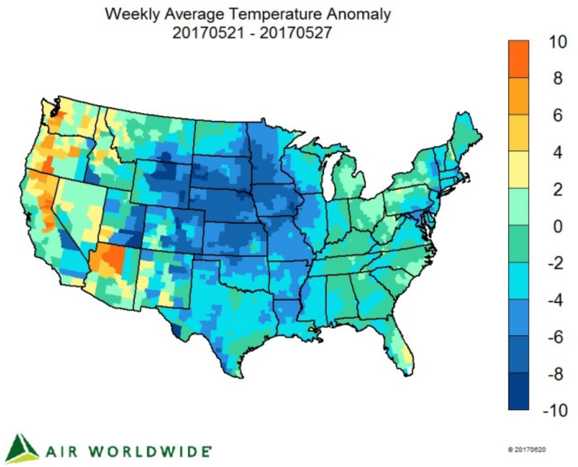
LAST MONTH'S OBSERVED CROP GROWING CONDITION

(VALID FOR THE WEEK ENDING MAY 27, 2017)









U.S. CROP HAIL

SEVERE THUNDERSTORM AND CROP HAIL DAMAGE IN MINNESOTA

Large areas of southern Minnesota were impacted by severe hail on June 11. Corn and soybean crops in Kandiyohi, Swift, Chippewa, and McLeod counties were particularly hard hit. The severe thunderstorm outbreak of June 11 also left more than 90,000 residents without power near Minneapolis.

METEOROLOGICAL SUMMARY

On Sunday, June 11, winds as high as 80 mph and hailstones as large as 2 inches in diameter were reported. The largest hailstones were reported in Murray County in southwestern Minnesota. Figure 1 shows a visualization of the event based on data provided by Verisk Analytics. The darker red areas saw the largest hailstones, with yellow representing small hailstones. These hailstorms were spawned from a line of severe thunderstorms—referred to as a bow echo, as storms in the center of the line travel faster than storms at either end—moving eastward from South Dakota in the early morning hours and continuing into Wisconsin in the afternoon.

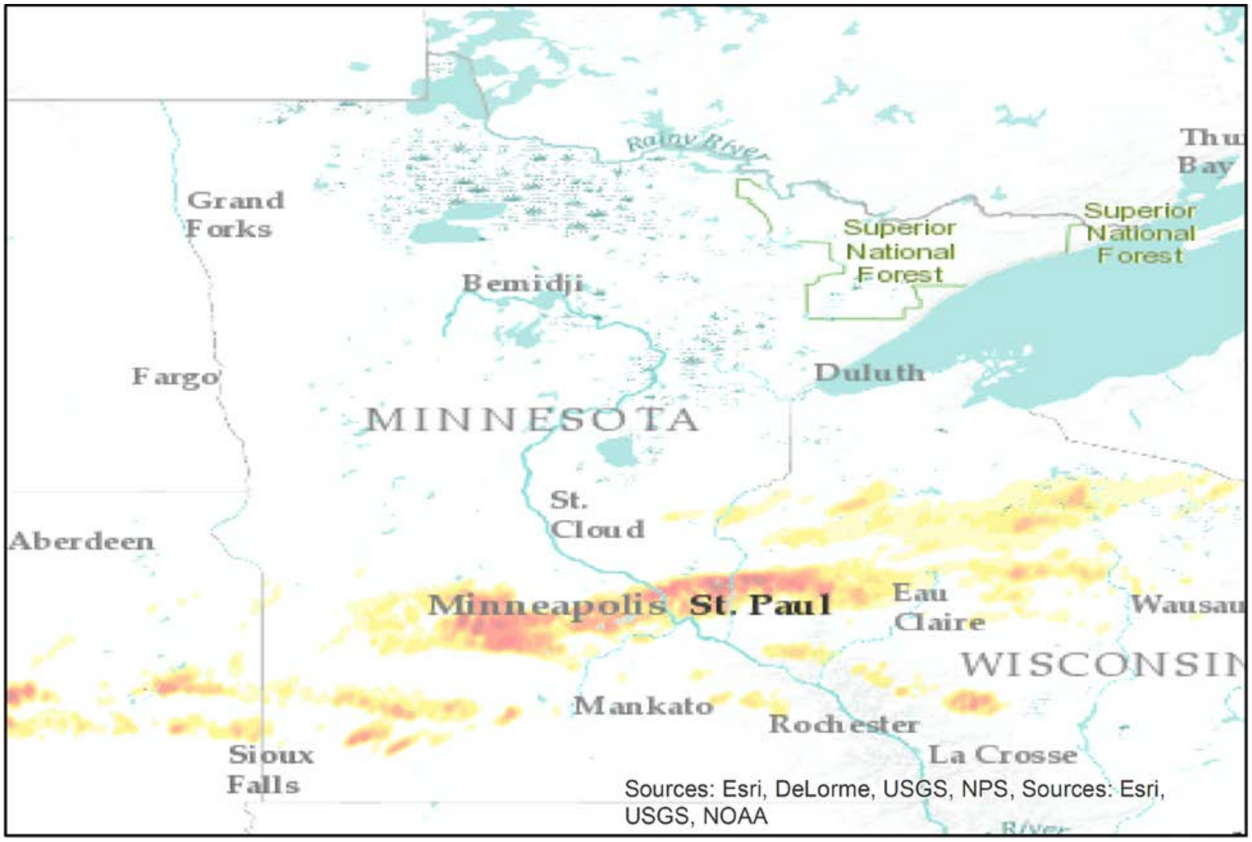


Figure 1. Severe thunderstorm outbreak on June 11, 2017. (Data Source: Verisk Analytics)

CROP DAMAGE REPORT

The severe thunderstorm outbreak of June 11 was predicted to cause significant damage to corn and soybean crops in southwestern and south-central Minnesota. Corn in this region was at the V5 stage (five collared leaves) and soybean varied from emerged to V2 (two developed leaves). It can be difficult to assess hail damage at these early stages, as corn growing points near the soil surface may have been damaged by hail accumulation around the plants. Soybean plants broken below the cotyledons or whose leaf tissue has been stripped during a storm would not be able to recover.

In addition to damage sustained by field crops, one of the oldest fruit-growing operations in the east metro area of Minneapolis saw all of their strawberry, raspberry, and blueberry plants destroyed within 30 minutes.

LOSS MODELED BY THE AIR CROP HAIL MODEL FOR THE U.S.

An analysis of the hail event of June 11 using the AIR U.S. Crop Hail Model produced a loss for the crop insurance industry in Minnesota in the range of USD 0.7–1.7 million. The largest modeled losses in Minnesota from this outbreak occurred in McLeod, Renville, and Chippewa counties, which are located west of Minneapolis. The majority of losses were the result of damage to corn and soybean. The modeled loss estimates represent losses to both the Standard Hail and Production Plan lines of business, with losses to the Standard Hail line of business accounting for the majority of the losses.

CANADA CROP HAIL

INTRODUCING AIR'S CROP HAIL MODEL FOR CANADA

The year 2016 was an expensive one for Canada's crop hail insurers, as the Prairie Provinces, which comprise the majority of Canada's cropland, sustained significant crop hail damage. Average annual insured losses to crops from hail are about CAD 200 million.[3] The 2016 growing season exceeded this average annual loss, with preliminary estimates of total payouts of nearly CAD 256 million in western Canada alone.[4] (To learn more about crop damage caused by hail during Canada's 2016 growing season, please read our *AIR Current.*) One of the main challenges in assessing the risk of loss to a crop hail insurance portfolio prior to the growing season is that historical data are limited and do not effectively represent the risk for crop hail damage. The AIR Crop Hail Model for Canada, released this month, assesses the risk of crop hail damage and losses through the use of a 10,000-year catalog of simulated hailstorms, providing 10,000 possible scenarios of hail activity in the coming growing season based on historic weather patterns and associated hail outbreaks. AIR will report on hail activity that causes significant damage to Canadian crops in our new section of CropALERT.

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[3] **Historica Canada: Hail**

[4] The Hail Report – Canadian Crop Hail Association. October 18, 2016

SEVERE THUNDERSTORMS IN THE PRAIRIE PROVINCES

Hail season is upon the Prairie Provinces with reports of severe thunderstorms in early June. A severe thunderstorm impacted Calgary on June 9 with reports of wind gusts reaching 93 km/h at the Calgary International Airport and toonie-sized[5] hail in southern Alberta. There are currently no publicly available reports of significant crop damage caused by these storms.

Saskatchewan has seen two early season storms. Saskatoon was affected by a June 2 hailstorm causing damage to vehicles and property. More storms the following week also caused damage to crops in Saskatchewan.[6]

Central Manitoba experienced very localized hail damage to cropland between May 29 and June 5, which was not considered to be severe. The following week saw more severe thunderstorm activity with hail and strong winds reported to have caused significant crop damage in the Killarney, Pilot Mound, and Crystal City areas.[7]

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[5] A toonie is a 2-dollar Canadian coin, which is 3.7 mm larger in diameter than an American quarter.
[6] Saskatchewan Crop Report. http://www.saskatchewan.ca/crop-report#utm_campaign=q2_2015&utm_medium=short&utm_source=%2Fcrop-report.
[7] Manitoba Crop Report June 12, 2017. http://www.gov.mb.ca/agriculture/crops/seasonal-reports/crop-report-archive/crop-report-2017-06-12.html.

CHINA MPCI

CURRENT GROWING CONDITIONS AND WEATHER EVENTS AFFECTING THE CHINA MPCI PROGRAM

A spring drought in the northeast, punctuated by severe thunderstorms in several regions, marks this as a year in China to keep an eye on, with corn and wheat production at particular risk. In the following sections, we discuss recent adverse weather events affecting China cropland. For your reference, we have included a map of China with all the provinces labeled (Figure 1).

Figure 2. Provinces of China.

Figure 2 presents the Crop Moisture Index for three time periods: the week ending June 17, 2017, in panel a; the week ending May 27, 2017, in panel b; and the week ending May 20, 2017, in panel c. In addition, panel d of Figure 2 shows the dominant crops growing in China and exposed to possible adverse weather during the month of June.

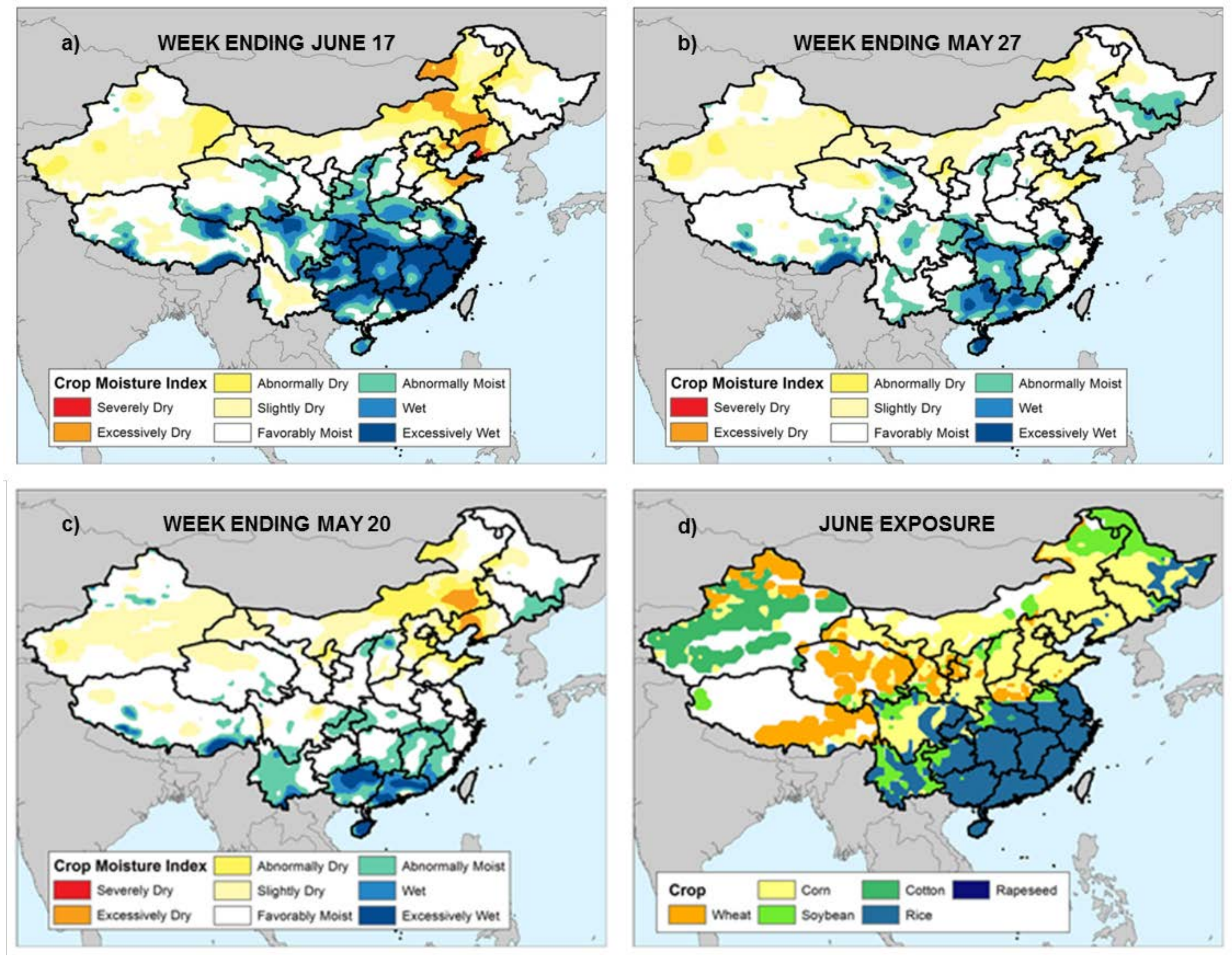

Figure 3. a) CMI for week ending June 17, 2017; b) CMI for week ending May 27, 2017; c) CMI for week ending May 20, 2017; d) dominant crop growing in regions of China during the month of June.

DROUGHT IN NORTH AND NORTHEAST CHINA

This spring, areas of north and northeast China have seen reduced precipitation and high temperatures, leading to drought stress in Inner Mongolia, Hebei, Liaoning, and Shandong. Dry conditions have impacted the planting and early development of corn in Inner Mongolia, Hebei, and Liaoning (see Figure 2d), leading some farmers to switch to soybean. Dry conditions have also affected the later developmental stages and harvest of winter wheat in Hebei and Shandong.

The initial period of drought stress ran from the beginning of May to May 22 (see Figure 2c), although indications of dry soil conditions were apparent as early as mid-April in Inner Mongolia and Liaoning. Crop areas affected by this event through May 19 are shown below by province. It is important to note that when total losses are given (below, in parentheses) they represent the total economic losses for that event recorded for each province and include both property and crop losses. All losses cited for China are sourced from the Ministry of Civil Affairs of the People's Republic of China, Department of Disaster Relief.[8]

Inner Mongolia: affected crop area is 543,200 hectares (CNY 700 million)
Hebei: affected crop area is 46,300 hectares (CNY 130 million)

For Inner Mongolia, Hebei, and Liaoning combined, the drought-affected area is 589,500 hectares; economic losses are CNY 840 million. Inner Mongolia has a larger year-to-date crop area affected by natural disasters than any other province in China, with 593,700 hectares total; the drought event is responsible for the majority of the affected area.

The drought stress was alleviated by heavy rains in northern China from May 22 to May 25 (see Figure 2b). This precipitation may have arrived in time and been sufficient to help the winter wheat crop during the important flowering stage, and the drier conditions that followed it may have been beneficial to harvest. However, the rain was accompanied by strong winds and hail in Henan, Shandong, Hebei, Shaanxi, and Shanxi, which additionally damaged crops in those provinces. Crop areas affected by this event through May 25 are shown below by province:

Henan: affected crop area is 126,900 hectares (CNY 300 million)
Shandong: affected crop area is 94,600 hectares, of which 900 is a total loss (CNY 360 million)
Hebei: affected crop area is 79,500 hectares, of which 1,600 is a total loss (CNY 250 million)
Shaanxi: affected crop area is 2,000 hectares (CNY 10 million)
Shanxi: affected crop area is 500 hectares (CNY 2 million)

For all regions combined, the affected area is 303,600 hectares; economic losses are CNY 920 million.

Despite the heavy rains at the end of May, Figure 2a shows that these areas continued to experience drought stress as of June 17. Thunderstorms brought heavy rain to the region on June 17 and June 18, and this may ultimately prove to mark the end of the drought, but for now this event remains one to watch.

[8] Ministry of Civil Affairs of the People's Republic of China, Department of Disaster Relief, 2017, retrieved from http://www.mca.gov.cn/article/yw/jzjz/zqkb/

EXCESS RAIN, STRONG WINDS, AND HAIL IN MANY PROVINCES OF CHINA

Even as dry conditions have prevailed, excessive rain events—often accompanied by strong wind and/or hail—have affected many locations in China. The three largest events, in terms of total cropland affected, occurred June 2, June 5–7, and June 9–13.

On June 2, short-term heavy rainfall, strong wind, and hail impacted Shandong, Shanxi, and Hebei, affecting wheat and greenhouse structures:

Shandong: affected crop area is 189,100 hectares, of which 1,500 is a total loss (CNY 660 million)
Hebei: affected crop area is 17,200 hectares, of which 200 is a total loss (CNY 38 million)
Shanxi: affected crop area is 200 hectares (CNY 2 million)

For all areas combined, the affected area is 206,500 hectares, of which 1,700 is a total loss; economic losses are CNY 700 million.

From June 5 to June 7, heavy rainfall, strong wind, and hail impacted Shaanxi, Ningxia, and Gansu in northwest China, affecting apple, walnut, and other crops:

Shaanxi: affected crop area is 33,100 hectares, of which 300 is a total loss (CNY 190 million)
Ningxia: affected crop area is 28,000 hectares, of which 1,400 is a total loss (CNY 66 million)
Gansu: affected crop area is 14,300 hectares, of which over 600 is a total loss (CNY 130 million)

For all areas combined, the affected area is 75,400 hectares, of which 2,400 is a total loss; economic losses are CNY 390 million.

From June 9 to June 13, floods, strong winds, and hail impacted Hubei, Hunan, Chongqing, Guizhou, Sichuan, Zhejiang, Jiangxi, Yunnan, and Fujian in southeast and southwest China:

Hubei: affected crop area is 37,900 hectares, of which 1,200 is a total loss (CNY 290 million)
Hunan: affected crop area is 12,000 hectares, of which 1,100 is a total loss (CNY 180 million)
Chongqing: affected crop area is over 6,200 hectares, of which 700 is a total loss (CNY 160 million)
Guizhou: affected crop area is 4,800 hectares, of which 500 is a total loss (CNY 51 million)
Sichuan: affected crop area is over 2,500 hectares, of which over 200 is a total loss (CNY 38 million)
Zhejiang: affected crop area is over 400 hectares (CNY 30 million)
Jiangxi: affected crop area is over 900 hectares, of which 100 is a total loss (CNY 9 million)
Yunnan: affected crop area is over 400 hectares (5 million)
Fujian: affected crop area is 100 hectares (CNY 4 million)

For all areas combined, the affected area is 65,600 hectares, of which 3,900 is a total loss; economic losses are CNY 780 million.

In particular, Shandong, Henan, and Hebei have large year-to-date affected crop areas—of 292,800, 161,100, and 146,400 hectares—largely due to the above rain, wind, and hail events and affecting corn and winter wheat.

MULTIPLE PERILS IN SHAANXI SINCE THE BEGINNING OF THE YEAR

Shaanxi and Hunan both have seen year-to-date affected crop areas that exceed 100,000 hectares, although due to widely different types of events.

Shaanxi has been affected by a number of different perils during the year. From last winter to the spring of 2017, there was 30–50% less precipitation than historical mean, with insufficient water for irrigation. The drought stress affected both wheat and rapeseed. Through February 23, 2017, the affected crop area is 39,500 hectares, with direct economic loss of over CNY 48 million.

Wind and hail affected Shaanxi several times in May and June. It hit Shaanxi and Gansu from May 2 to May 5. The affected crop area in Shaanxi is 7,700 hectares, with direct economic loss of CNY 23 million. May 13–15 saw wind and hail impact central and western China, including Shanxi, Henan, Sichuan, Shaanxi, Gansu, and Ningxia. In Shaanxi, the affected crop area is 10,100 hectares, of which 200 is a total loss; direct economic losses totaled CNY 98 million. June 5–7 saw heavy rainfall, wind, and hail in some areas of northwest China, affecting apple, walnut and other crops in Shaanxi, Gansu, and Ningxia. In Shaanxi, the affected crop area is 33,100 hectares, of which 300 is a total loss; direct economic losses totaled CNY 190 million. These events impacted the later stages of development and harvest of wheat and the planting and early stages of development of corn.

In total, from the beginning of the calendar year, it has been reported that 102,800 hectares of cropland in Shaanxi have been damaged; 1,100 hectares are a total loss, and economic losses total CNY 489 million.

FLOODING IN HUNAN DURING MAY AND JUNE

Hunan has seen several excessive rain and flooding events this year. From the middle of May through the middle of June, there were at least five separate flooding events with an average of 15,000 hectares of damaged cropland. These events occurred during the beginning of an early summer rice crop but also impacted winter wheat, soybean, and corn seasons. In total, from the beginning of the calendar year, it has been reported that at least 99,000 hectares of cropland have been damaged in Hunan, 10,100 hectares are a total loss, and total economic losses are CNY 1.35 billion.

CONTACT US

AIR is the industry-leading provider of agriculture risk modeling solutions and currently offers multiple-peril crop models for the United States and China as well as the Crop Hail Model for the U.S and Crop Hail Model for Canada. AIR's models are used to assess potential gains and losses to crop insurance portfolios, to inform fund designation strategies, and to price risk transfer options for an upcoming growing season. Crop insurers, reinsurers, and financial and agribusiness companies rely on AIR's software and consulting services to manage their agriculture risk. If you would like to learn more about AIR's solutions, please contact Oscar Vergara at **overgara@air-worldwide.com**.

ABOUT AIR WORLDWIDE

AIR WORLDWIDE (AIR) provides catastrophe risk modeling solutions that make individuals, businesses, and society more resilient. AIR founded the catastrophe modeling industry in 1987, and today models the risk from natural catastrophes, terrorism, cyber attacks, and pandemics globally. Insurance, reinsurance, financial, corporate, and government clients rely on AIR's advanced science, software, and consulting services for catastrophe risk management, insurance-linked securities, site-specific engineering analyses, and agricultural risk management. AIR Worldwide, a Verisk Analytics (Nasdaq:VRSK) business, is headquartered in Boston with additional offices in North America, Europe, and Asia. For more information, please visit www.air-worldwide.com.

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