USDA
United States Department of Agriculture

Foreign Agricultural Service
Global Market Analysis
International Production Assessment Division
Web: https://ipad.fas.usda.gov

May 20, 2022

Commodity Intelligence Report

China Wheat: MY 2022/23 Production Projected Down From Last Year

With China's winter wheat crop nearing maturity and harvest, prospects continue to favor above average production, but down from last year. China's marketing year (MY) 2022/23 wheat production is forecasted at 135.0 million metric tons (mmt), down 1.95 million or approximately 1 percent from last year, but up approximately 1 percent or 900,000 tons from the 5-year average of 134.1 mmt (Figure 1). Wheat area for MY 2022/23 is estimated at 23.4 million hectares (mha), down 170,000 ha or approximately 1 percent from last year and down 2 percent or 480,000 ha from the 5-year average of 23.88 mha. Yield is forecasted at 5.77 metric tons per hectare (mt/ha), down 1 percent from last year's record of 5.81 mt/ha. This year's yield is 3 percent above the 5-year average yield expectation of 5.62 mt/ha.

China is one of the world's most important wheat-producing countries. In 2021, China ranked number two in wheat production behind the European Union (EU) with an estimated production of approximately 136.9 mmt (?) compared to the EU's 138.4. Winter wheat accounts for about 95 percent of China's total wheat output, with more than 75 percent of the crop produced in five provinces located on the North China Plain (Henan 27%, Shandong 19%, Anhui 12%, Hebei 11%, and Jiangsu 10%) (Figure 2). Overall, the season's soil moisture conditions during planting, in September and October, were wetter-than-normal (Figure 3). Flooding in some locations across the major wheat growing regions resulted in delayed planting (Figures 4, 5, 6). By some Chinese official estimates, about a third of the wheat area experienced delayed planting and slowed early growth and development. These factors likely reduced productivity compared to last year. As the season progressed in January through March, favorable weather and soil moisture conditions prevailed across the major wheat regions including Henan, Hebei, Shandong, Anhui, and Jiangsu provinces (Figure 7). The growing trend during this period significantly improved and showed continued positive changes.

Since the beginning of spring, the meteorologic conditions including temperature and rainfall in the main producing areas of winter wheat were relatively favorable. The mid-to-late season satellite assessment indicated significant improvement during heading, flowering, and grain filling stages (Figures 8, 9, 10). This suggests a high likelihood of a favorable finish to the winter cropping season, which might increase the potential yields, especially for late sown crops. Continued favorable weather and soil moisture conditions in April and May are likely to ensure favorable grain filling, full maturity, and harvest. Harvest is expected to start in mid-May and continue through the end of June. As much

of the season has now passed, rainfall during May and June has less overall effect except for a wet finish, which can further affect grain quality and impede harvesting due to lodging. According to FAS/Beijing, this year's crop is likely to have overall poor grain quality, specifically low protein, broken kernels, and higher toxin rates. This is primarily due to slow crop establishment and development during some critical stages in the season. The bulk of the wheat will be bound for feed and ethanol use. Traditionally, the MSP program (Minimum Support Price) procures more wheat in a bad crop year than in a good year.

China's winter wheat crop is planted from late September through October and harvested in May/June the following year. Although most of the crop is grown on the North China Plain, winter wheat is also produced in western China and parts of the Yangtze basin and southwest China. A small spring wheat crop (less than 5 percent of total production) is grown in northern and western regions. While planted area has been declining since 2017, yield has increased steadily over the past decade despite periodic droughts. Most of the crop receives irrigation at some point during the growing season, and average yields are significantly higher than the world average. The high yields have been achieved primarily due to widespread irrigation, the development of high-yielding varieties, adequate supply of production inputs, and strong government financial support.

China Wheat Area, Yield, and Production PSD Time Series

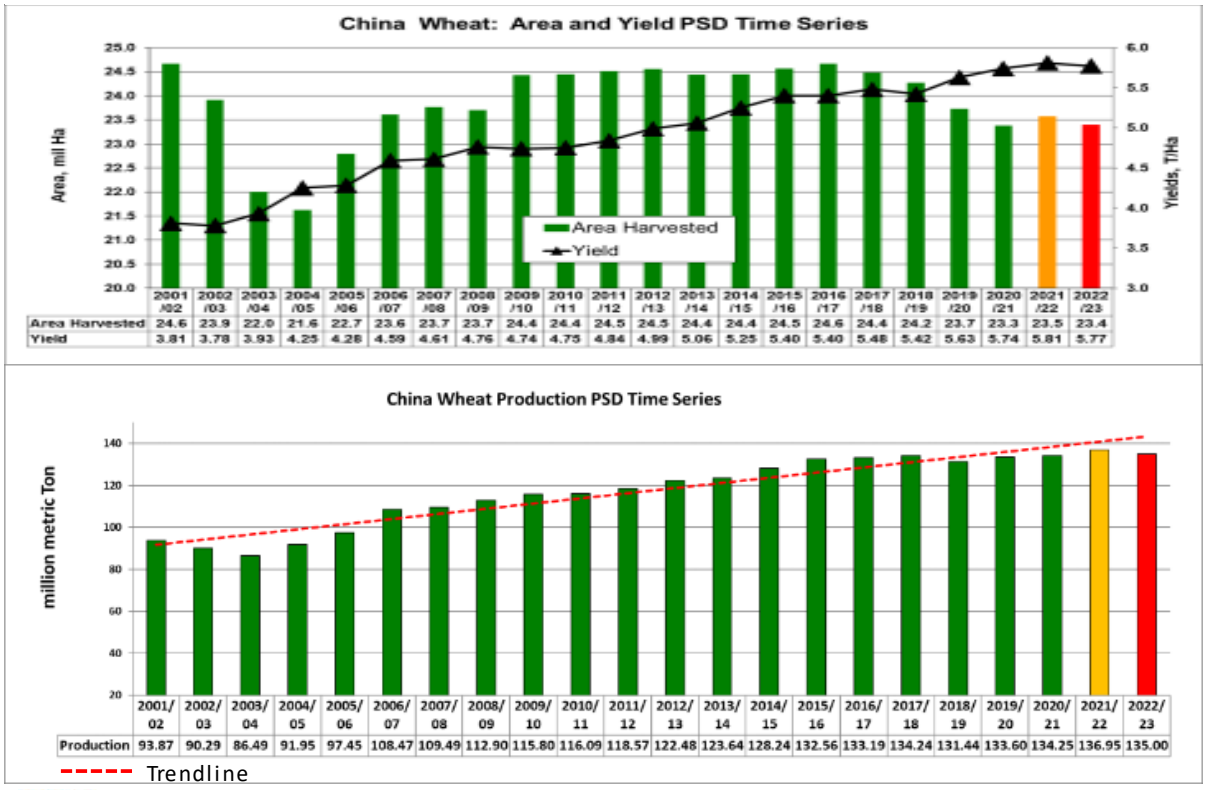


Figure 1. China Wheat Area, Yield, and Production PSD Time Series.

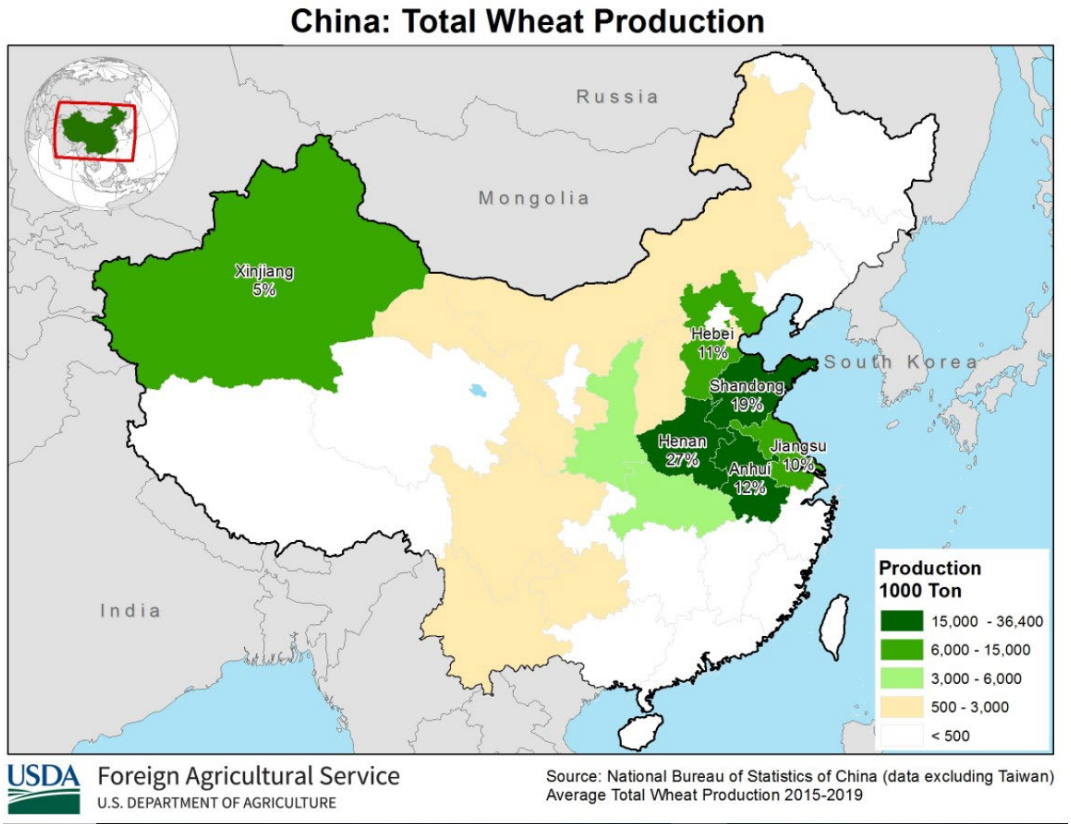
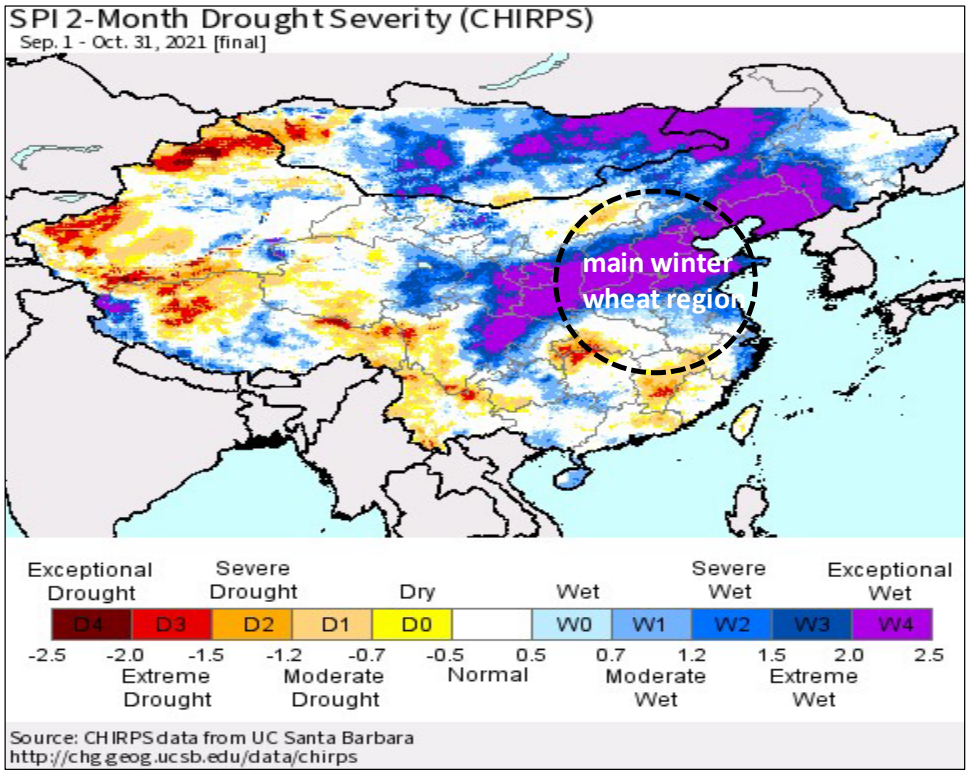


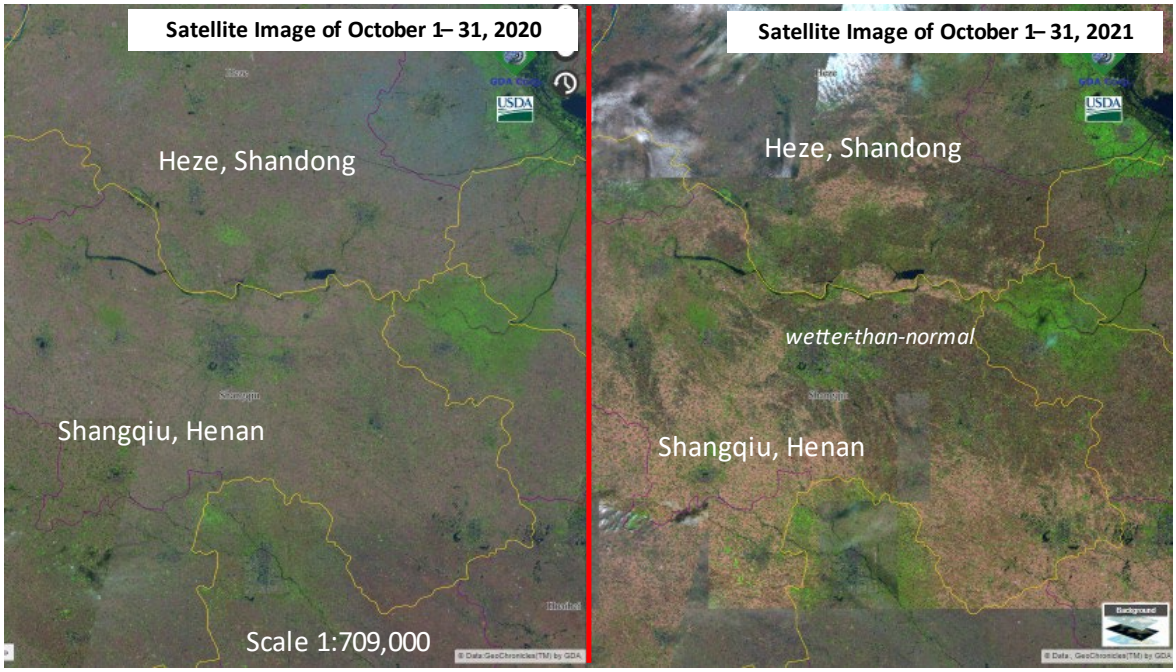
Figure 2. China Wheat Production Distribution Map. Source: NBSC via USDA Crop Explorer.



USDA Foreign Agricultural Service
Global Market Analysis
International Production Assessment Division

Source: CHIRPS, UC Santa Barbara via USDA Crop Explorer

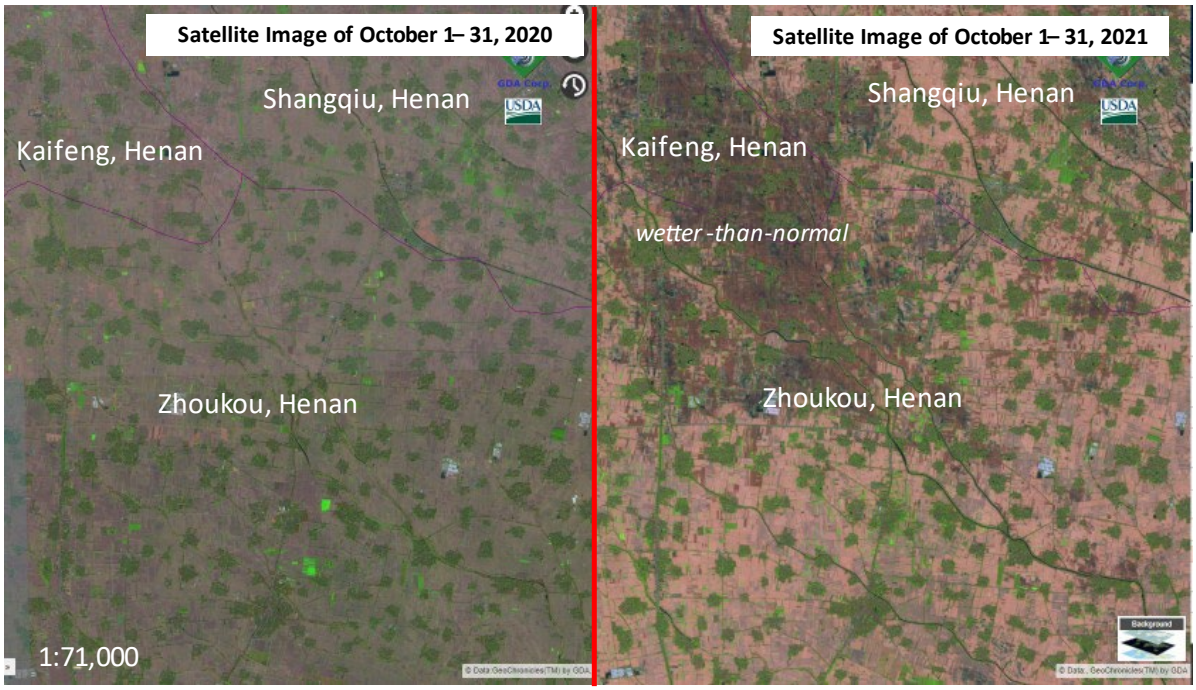
Figure 3. China September - October soil moisture distribution map, shows wetter-than-normal conditions across the east China Plains and the Northeast Provinces. In the major wheat growing regions this resulted in delayed planting and early crop establishment. The conditions were predominant during planting and early crop establishment.



Source: USDA, GDA Corp, Sentinel2/Landsat-8 (10m) 10-day composite imagery

USDA Foreign Agricultural Service
Global Market Analysis
International Production Assessment Division

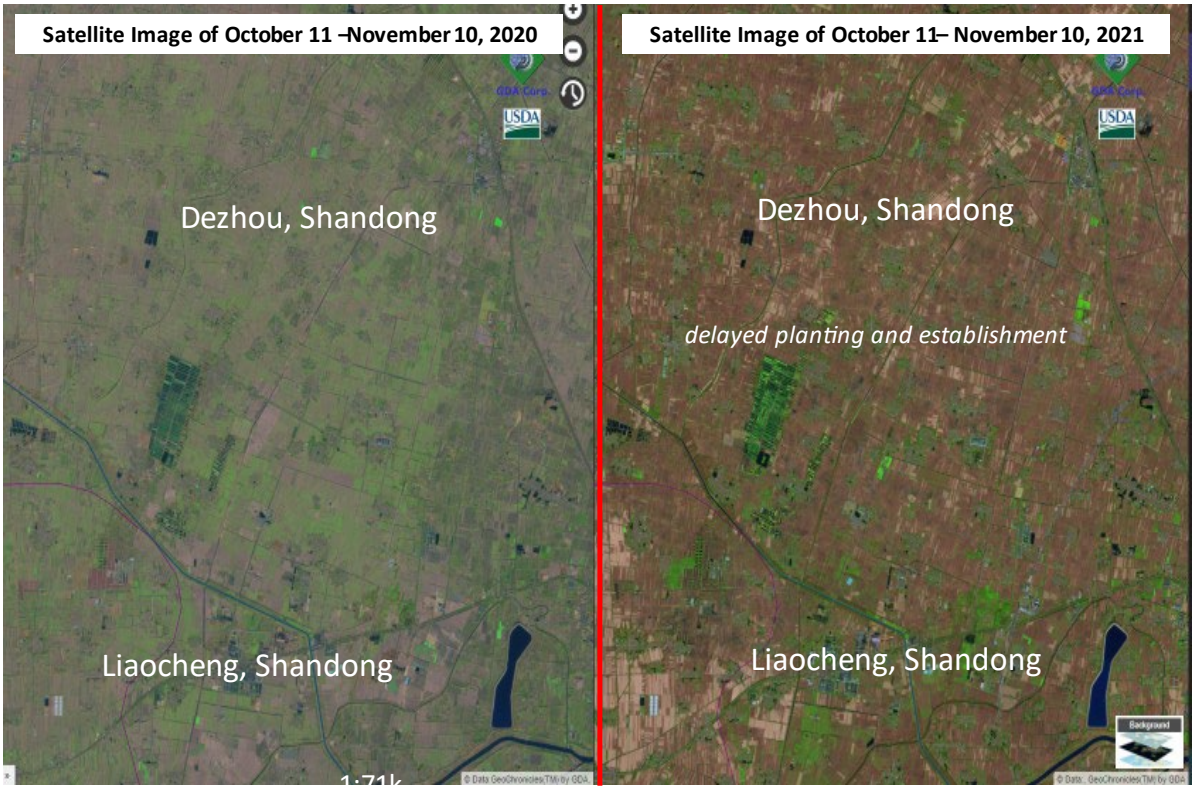
Figure 4. Satellite data assessment of October 2020 (left) and October 2021 (right). The assessment indicated that in 2021, planting was delayed due to continued wetter-than-normal conditions. This may have affected the total area planted, early crop establishments, potential yield prospects and may result in reduced year-to-year productivity. The satellite images show crop covered areas in light-to-bright green, water or waterlogged areas are dark, bare earth or fields ranging from tan to pink, and built-up (urban) areas are in purple. Overall, the soil moisture conditions during planting and early crop establishment, in September- December, were wetter-than-normal across the major wheat growing regions including Shandong and Henan, resulting in delayed planting.



Source: USDA, GDA Corp, Sentinel2/Landsat-8 (10m) 10-day composite imagery

USDA Foreign Agricultural Service
Global Market Analysis
International Production Assessment Division

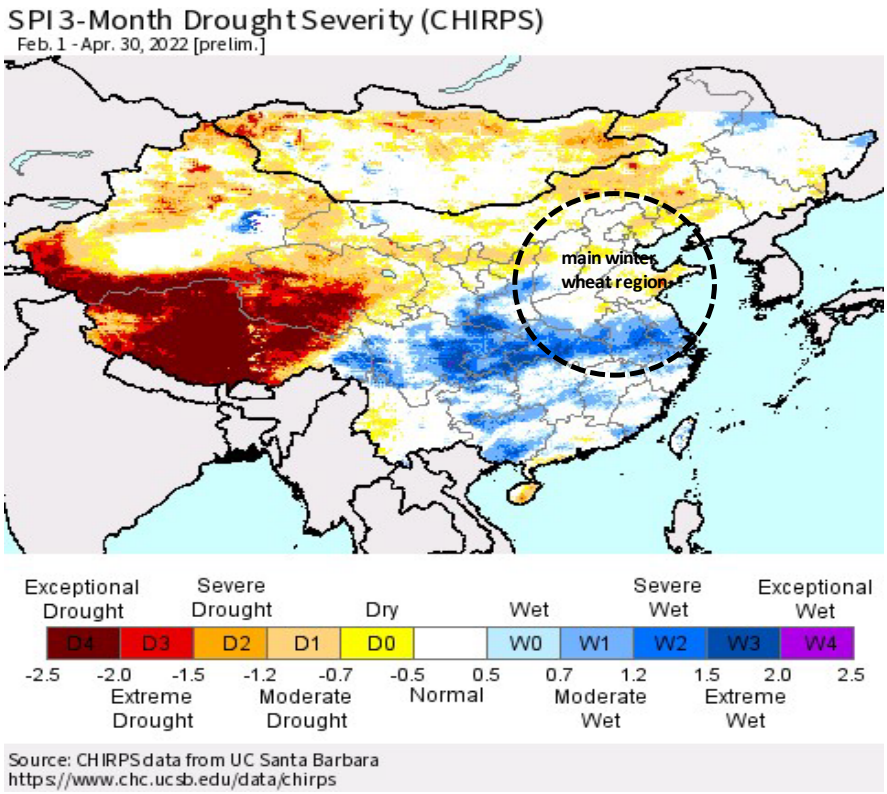
Figure 5. October satellite data assessment of 2020 (left) and 2021 (right) indicated that in the current growing season, MY2021/22, delayed planting and continued wetter-than-normal conditions may have affected the total area planted, early crop establishments, potential yield prospects and may result in reduced year-to-year productivity. The satellite images show crop covered areas in light-to-bright green, water or waterlogged areas are dark, bare earth or fields ranging from tan to pink, and built-up (urban) areas are in purple. Overall, the soil moisture conditions during planting and early crop establishment, in September-December, were wetter-than-normal across the major wheat growing regions including Henan, resulting in delayed planting.



USDA Foreign Agricultural Service
Global Market Analysis
International Production Assessment Division

Source: USDA, GDA Corp, Sentinel2/Landsat-8 (10m) 10-day composite imagery

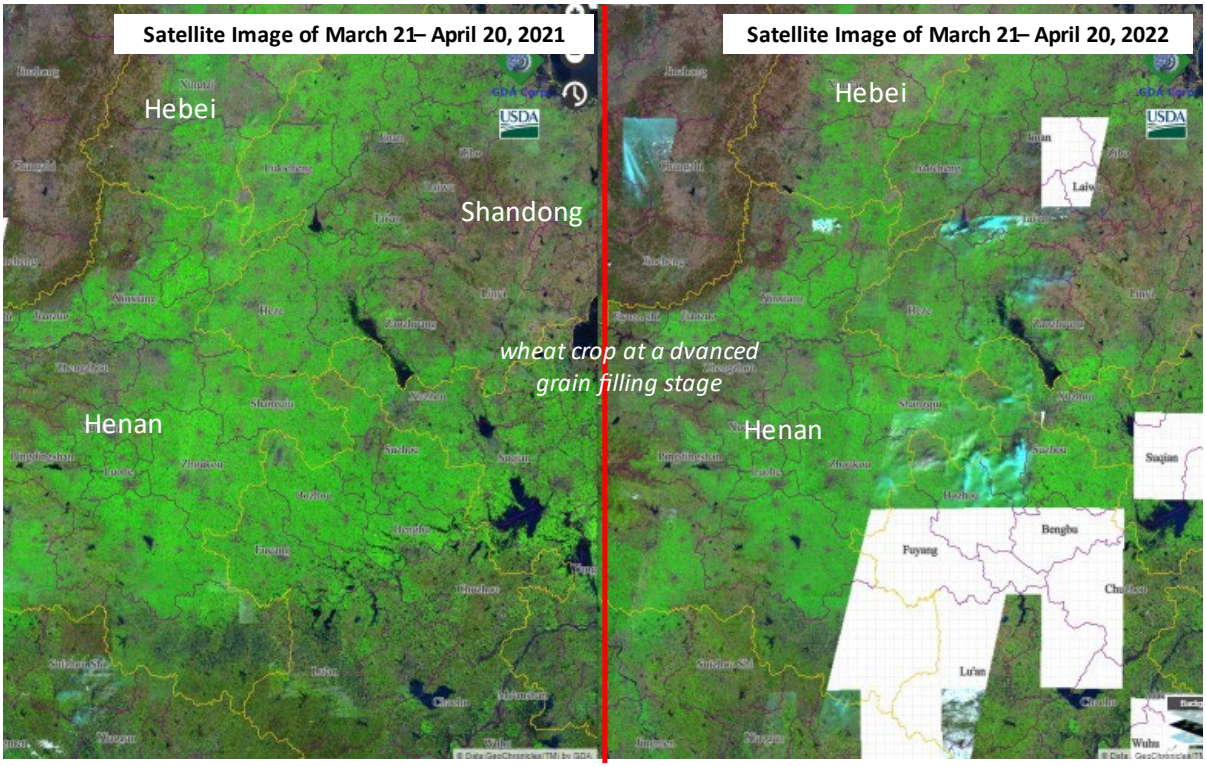
Figure 6. October-November satellite data assessment of 2020 (left) and 2021 (right) indicated that in the current growing season, MY2021/22, delayed planting and continued wetter-than-normal conditions may have affected the total area planted, early crop establishments, potential yield prospects and may result in reduced year-to-year productivity. The satellite images show crop covered areas in light-to-bright green, water or waterlogged areas are dark, bare earth or fields ranging from tan to pink, and built-up (urban) areas are in purple. Overall, the soil moisture conditions during planting and early crop establishment, in September-December, were wetter-than-normal across the major wheat growing regions including Shandong, resulting in delayed planting.



USDA Foreign Agricultural Service
Global Market Analysis
International Production Assessment Division

Source: CHIRPS, UC Santa Barbara via USDA Crop Explorer

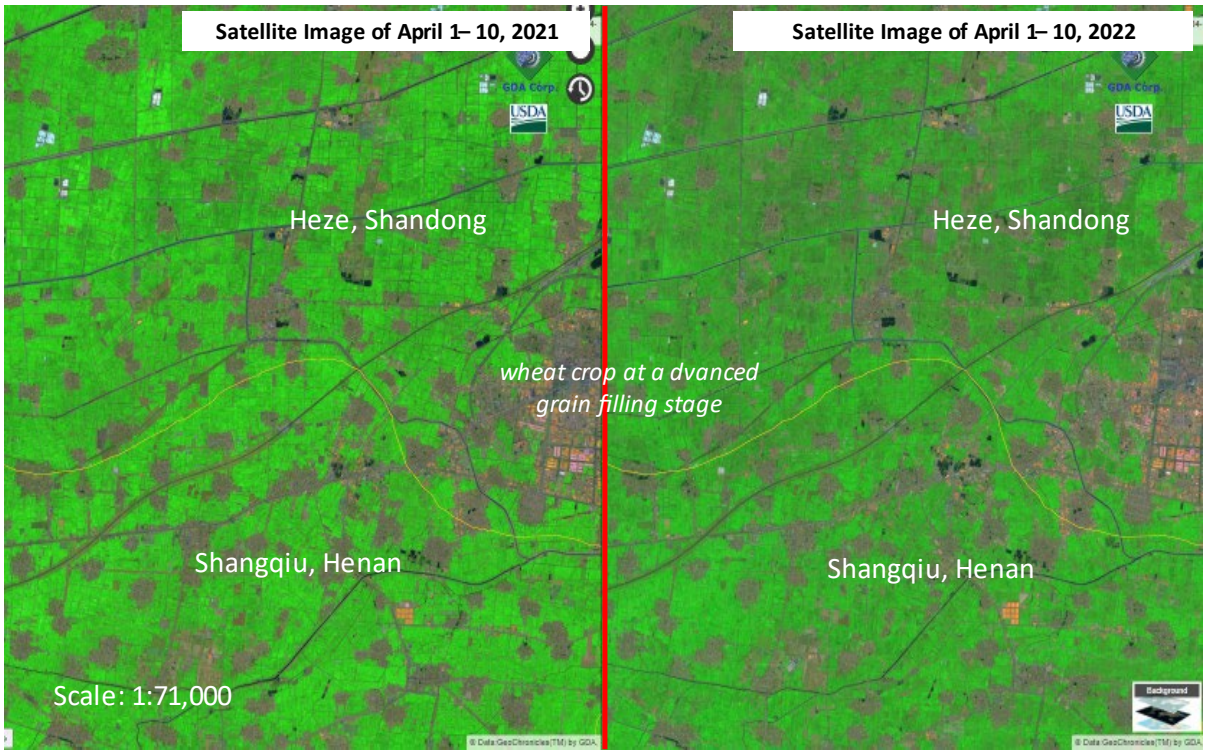
Figure 7. China February - April soil moisture distribution map, shows as the season progressed in January through April, favorable weather and soil moisture conditions prevailed across the major wheat regions including Henan, Hebei, Shandong, Anhui, and Jiangsu provinces. This resulted in improved crop growth and development. The mid-to-late season satellite assessment indicated significant growing trend improvements during this period of heading, flowering, and grain filling stages.



Foreign Agricultural Service
Global Market Analysis
International Production Assessment Division

Source: USDA, GDA Corp, Sentinel2/Landsat-8 (10m) 10-day composite imagery

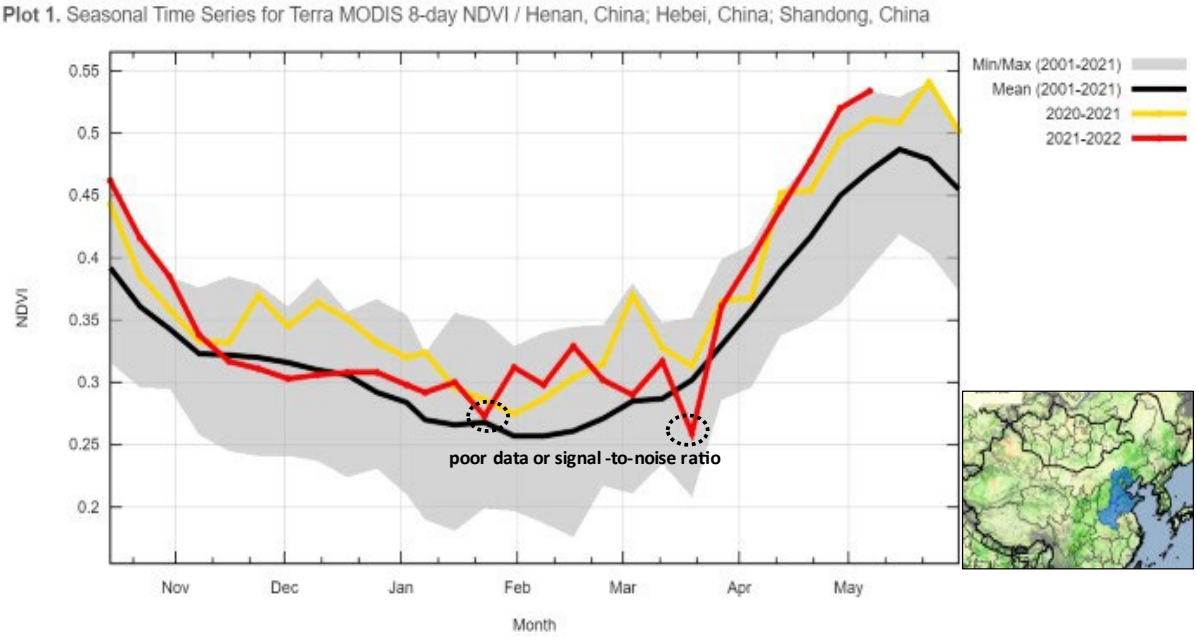
Figure 8. Late March to April satellite data assessment of 2021 (left) and 2022 (right) indicated that as the season progressed into January to April there were significant improvements during heading, flowering, and grain filling stages, increasing yield prospects above levels projected early in the season. The satellite images show crop covered areas in light-to-bright green, water or waterlogged areas are dark, bare earth or fields ranging from tan to pink, clouds in light bright blue, built-up (urban) areas are in purple, and no-data shown in white patches.



Source: USDA, GDA Corp, Sentinel2/Landsat-8 (10m) 10-day composite imagery

Foreign Agricultural Service
Global Market Analysis
International Production Assessment Division

Figure 9. April satellite data assessment of 2021 (left) and 2022 (right) indicated that as the season progressed there were significant improvements during heading, flowering, and grain filling stages, increasing yield prospects above levels previously projected early in the season. The satellite images show crop covered areas in light-to-bright green, water or waterlogged areas are dark, bare earth or fields ranging from tan to pink, and built-up (urban) areas are in purple.



USDA Foreign Agricultural Service
Global Market Analysis
International Production Assessment Division

Source: USDA/NASA Global Agricultural Monitoring (GLAM) System

Figure 10. Satellite-derived Normalized Difference Vegetation Index (NDVI) data analysis indicates that as the season progressed there were significant improvements during heading, flowering, and grain filling stages, increasing yield prospects compared to below-average NDVI values early in the season. The dips (in black circle) indicate poor data or signal-to-noise ratio due to clouds or other contaminants.

Author contact information:

Dath K. Mita, PhD
dath.mita@usda.gov

For more information and to access FAS databases and reports please visit:

Current World Agricultural Production Reports
https://www.fas.usda.gov/data/world-agricultural-production

Production, Supply and Distribution Database (PSD Online)
https://apps.fas.usda.gov/psdonline/app/index.html#/app/home

Global Agricultural Information Network (Agricultural Attaché Reports)
https://www.fas.usda.gov/databases/global-agricultural-information-network-gain

Crop Explorer
https://ipad.fas.usda.gov/cropexplorer/

Global Agricultural and Disaster Assessment System (GADAS)
https://geo.fas.usda.gov/GADAS/index.html