

## Commodity Intelligence Report

July 22, 2019

## North Korea: Early and Mid-Season Dryness Increases Food Productivity Concerns

In North Korea (Democratic People's Republic of Korea, DPRK) the early part of the 2019/20 season (April, May, and June) has been characterized by below-average rainfall, poor irrigation water availability, and unfavorable, drier-than-normal conditions across the major growing regions. Summer is the main cropping season and the main agricultural crops are corn, rice, potatoes, soybeans, millet, sorghum, and sweet potatoes. Summer crops are typically planted in March through June and harvested between July and October. The optimum planting window for the major food security crop, rice, is May through June.

USDA forecasts DPRK's 2019/20 rice production at 1.36 million metric tons, unchanged from last year's lowest production in 10 years, and down 17 percent from the 5-year average. Area is forecast at 0.5 million hectares, unchanged from last year. Yield is forecast at 4.18 tons-per-hectare (t/ha), down 15 percent from last year and down 19 percent from the 5-year average. Rice planting was complete in June, and with widespread drought conditions, below-average irrigation water availability and unfavorable soil moisture conditions, production prospects across key producing areas in South Hwanghae and North Hwanghae provinces are unfavorable. The DPRK's rice crop production is predominantly in the western provinces including North Pyongan, North Hwanghae, and South Hwanghae (Figure 1).

USDA's assessment of crop conditions relies heavily on satellite-derived indices and agroclimatic indicators, such as percent of normal precipitation, surface soil moisture anomalies, and standardized precipitation index (a measure of drought). Beginning in March and continuing into May, rainfall was below average across many parts of South Hwanghae and North Hwanghae provinces (Figure 2). Surface soil moisture anomalies indicate increasingly drier-than-normal conditions, creating stress for the recently planted crop (Figure 3). Drought severity in the key rice-growing regions is moderate with some areas identified as severe (Figures 4, 5).

Overall, the observed crop conditions indicate a poor start to the growing season, characterized by long dry spells, severe dry soil moisture and moisture-related plant stress. If these conditions continue or worsen, DPRK could face an agricultural drought, with further implications for food security and worsening water shortages.





Figure 1. Major rice growing regions of North Korea





## North and South Korea: Percent (%) of Normal Precipitation, 2019

Figure 2: Analysis of the Climate Hazards Center CHIRPS rainfall dataset indicates that regions in South Hwanghae and North Hwanghae provinces were experiencing severe early and mid-season dryness; their driest season relative to the long-term conditions. Precipitation has been less-than 75 percent (%) of normal.



SMAP Surface Soil Moisture Anomaly, 2019

Figure 3: Satellite-derived Soil Moisture Active Passive (SMAP) surface soil moisture retrievals indicate that major growing regions in South Hwanghae and North Hwanghae provinces have experienced severe early and mid-season dryness; the surface soil moisture anomaly is drier-than-normal across the major rice growing regions.





North and South Korea Drought Assessment, 2019

Figure 4: Analysis of the Climate Hazards Center CHIRPS drought severity dataset indicates that regions in South Hwanghae and North Hwanghae provinces were experiencing severe early and mid-season dryness; conditions ranging from moderate-to-severe drought.

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Figure 5: Analysis of the Climate Hazards Center CHIRPS drought severity dataset indicates that regions in South Hwanghae and North Hwanghae provinces have experienced 3-months of severe early and mid-season dryness; in the past 3 months conditions have ranged from moderate-to-severe drought.

For additional information contact Dath Mita | dath.mita@fas.usda.gov | 202-720-7339

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U. S. Department of Agriculture Foreign Agricultural Service Office of Global Analysis International Production Assessment Division Ag Box 1051, Room 4630, South Building Washington, DC 20250-1051 Telephone: (202) 720-1662 Fax: (202) 720-1158