

Foreign Agricultural Service

Global Market Analysis

International Production Assessment Division

Web: <https://ipad.fas.usda.gov>

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**Commodity
Intelligence
Report****North Korea 2021/22 Seasonal Crop Outlook**

In North Korea, the 2021 season summer crop planting is complete with the optimal planting period from April through May (Figure 1). Most crops are in early growth stages as of mid-July. The rainy season normally starts in April and about 80 percent of the annual precipitation on average occurs between July and September. The 2021 growing season began with beneficial starting soil moisture conditions and the seasonal rainfall outlook indicates close to average crop yield expectations. The main season crops include rice and corn, accounting for almost 90 percent of the total crop output, plus small quantities of soybeans, potatoes, millet, and sorghum (Figure 2). Rice is predominantly produced in the western provinces of South Hwanghae (28%, Hwanghae-namdo), North Pyongan (22%, P'yongan-bukto), South Pyongan (20%, P'yongan-namdo), and South Hamgyong (11%, Hamgyong-namdo). The southern, southwestern, and western provinces are considered the "cereal bowl regions" (Figure 3). In recent years potatoes have emerged as a staple crop next to rice and corn, contributing about 8 percent to the annual output of food crops. Conversely, wheat and barley are mainly winter crops with a small amount planted in early spring; wheat and barley contribute approximately 2 percent to total annual food production.

Overall, crop productivity is expected to be near average to above average, however, it is early in the cropping season. In addition to the crops outlook being favorable, particularly for rice and corn, new land has been brought under production through such projects as river improvement, straightening of waterways, and relocation of public buildings, according to North Korea's Ministry of Agriculture.

At an aggregated national level, USDA is forecasting a 5-year median rough rice yield of 4.18 ton per hectare (t/ha) and production of 2.0 million tons (mil tons). The current rice yield forecast is almost 10 percent below the 5-year average expectation of 4.62 t/ha. The lower yields are primarily due to expansion of rice planted area in marginal lands and poor capacity to import much-needed agricultural inputs such as improved hybrid seeds and fertilizers. Rice planted area is up approximately 2 percent from the 5-year average. Corn yield is forecast at 4.14 t/ha and total production of 2.3 mil tons. Corn yield forecast is almost the same as the long-term average expectation. The forecasts incorporate current satellite-based observations of soil moisture conditions and crop growth based on the NDVI (Normalized Difference Vegetation Index), as well as the seasonal rainfall outlook based on various agro-climatological sources. For example, in P'yongan-namdo, which accounts for roughly 20 percent of rice production, vegetation conditions are above average and slightly above last year. (Figure 4). There is, however, some variation within

the country's cropping regions. Based on the beneficial start of the season for soil moisture, most parts of North Korea's western cropping regions have an increased likelihood for this year's rice and corn crop to be above the long-term average, while some parts in the Central region and Northeast have an increased chance for an average or below-average crop.

In June and early July, the rainfall and soil moisture conditions were generally favorable, ranging from normal to moderately wet across the major crop growing regions, with generally normal conditions over the east and above normal conditions over the central and western provinces (Figure 5). The beneficial growing conditions are projected to have encouraged further summer crop plantings across most parts of North Korea's cropping region. All indications are that rainfall during June-July was sufficient to fully recharge irrigation water reservoirs, coupled with significant carry over water levels from the 2020 season. North Korea received record rainfall in 2020 which led to flooding in August this past year.

According to the European Commission's Monitoring Agricultural Resources (MARS) project, no anomaly hotspots of agricultural production (ASAP) have been issued since the start of the 2021 growing season (Figure 6). MARS states that with average to above-average rainfall and temperatures in the last three months conditions have been favorable for corn and rice crops and crop vegetative growth is above average. Approximately 80 percent of total cereal is produced in Hamgyong-namdo, Hwanghae-bukto, Hwanghae-namdo, P'yongan-bukto, and P'yongan-namdo. So far, none of these major production regions have been flagged with anomaly hotspots.

In summary, this early in the season, as most of the growing season remains, there is a wide range of possible yield outcomes for the 2021 season. Widespread above-average rainfall and soil moisture during the next two months across all parts of the country's cropping regions should induce favorable mid-season crop growth and development is needed to sustain the current forecasts and/or improve the yield outlook across the major growing regions. It is also important to keep in mind that food production and food security in North Korea, beyond weather and agricultural conditions, is dependent on a wide range of changing political and social-economic variables. For many operational decision support systems and experts the variables present challenges in the timely and accurate prediction of crop production. Over the years, it is generally recognized that in North Korea, the food security situation is to a large extent influenced by the dynamics at the border with China. For instance, last season the closure of the border with China to prevent the spread of the COVID-19 virus, significantly impacted North Korea's capacity to import much-needed agricultural inputs such as improved seeds, fertilizers, herbicides, pest control chemicals, farm machinery and spare parts. It is difficult to predict how these variables may impact final harvest results. Overall, crop productivity is expected to be near average to above average, however, it is early in the cropping season.

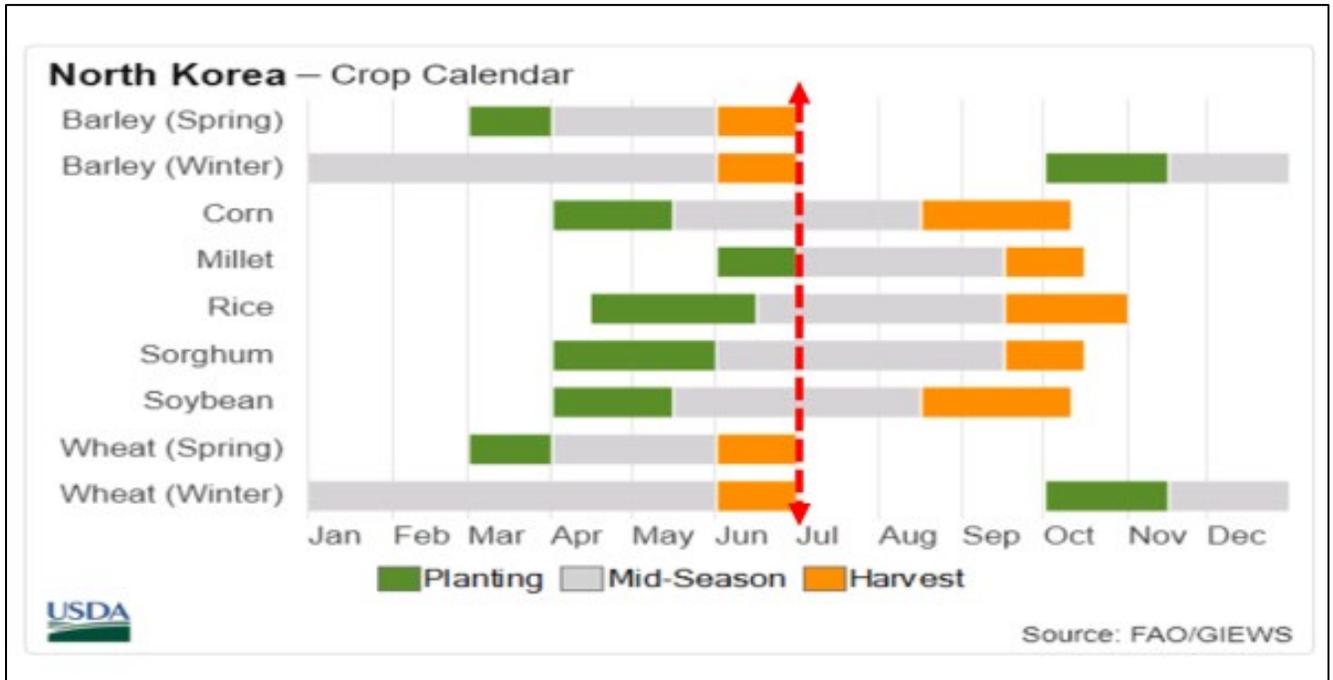


Figure 1. Planting is complete for the major summer food crops in North Korea

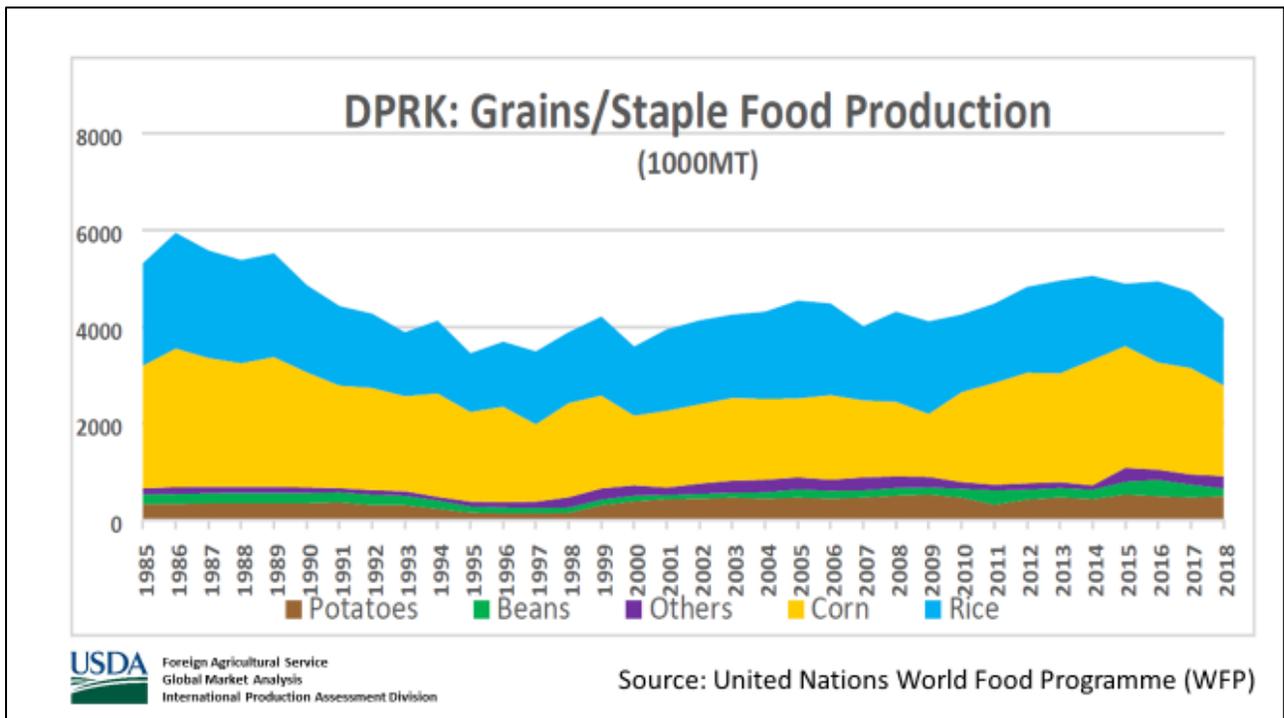
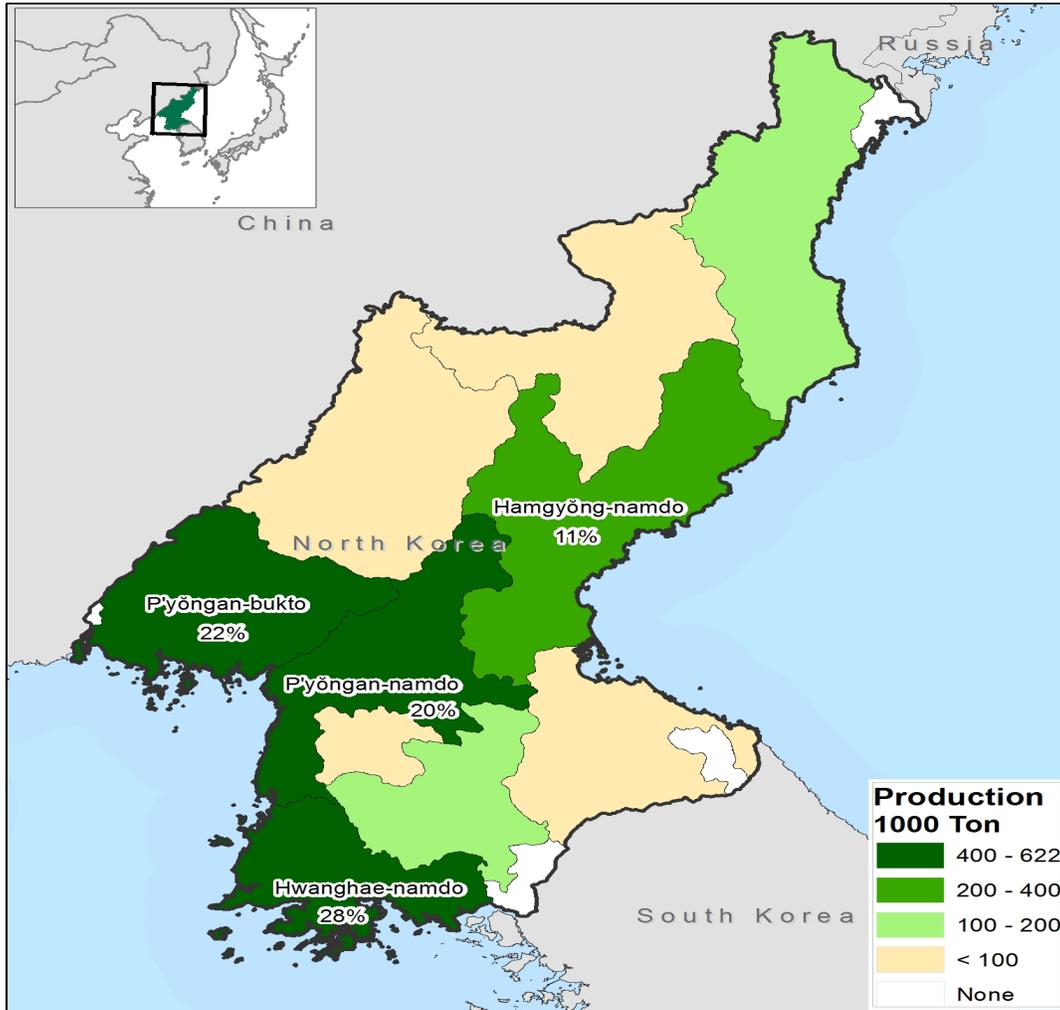


Figure 2. Corn and rice are the major staple food production crops for North Korea

North Korea: Rice Production



Source: FAO and WFP. 2019.
Average Crop Production of 2017-2018

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Figure 3. The western provinces are considered the “cereal bowl regions” The map shows the percent proportion of rice produced in the western provinces. Similar trends are true for corn and other major staple food production crops.

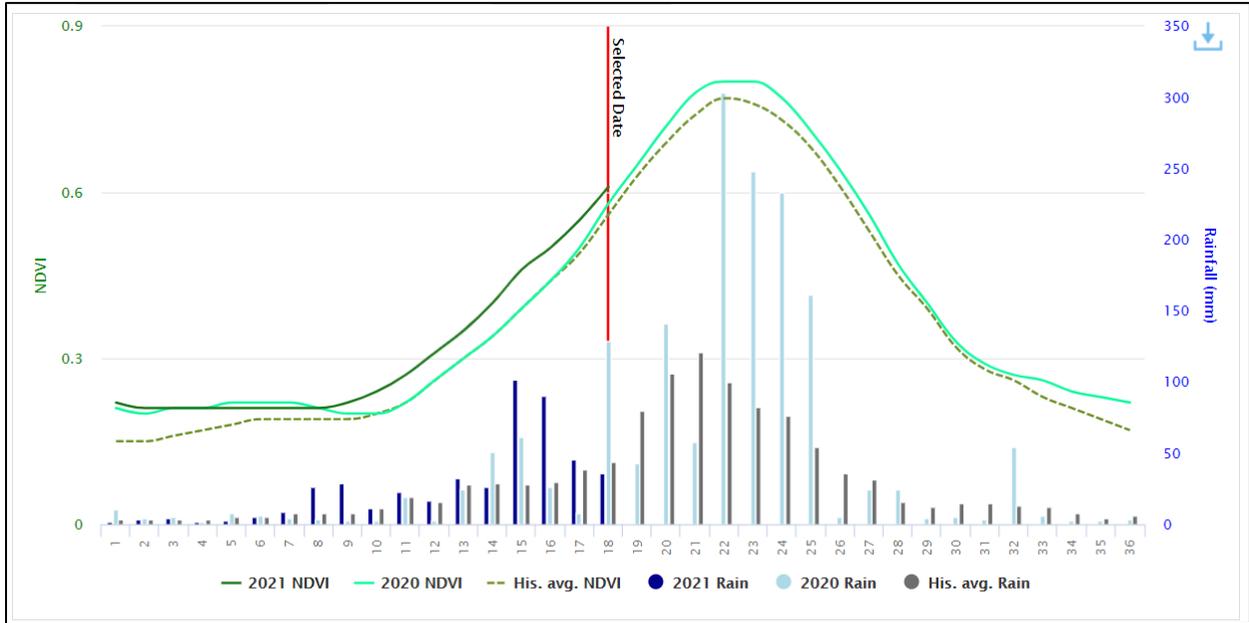


Figure 4. Rainfall and NDVI (Normalized Difference Vegetation Index) time series for P'yongan-namdo province, (selected date June 30, 2021). The graphs indicate favorable rainfall and NDVI for 2021 relative to 2020.

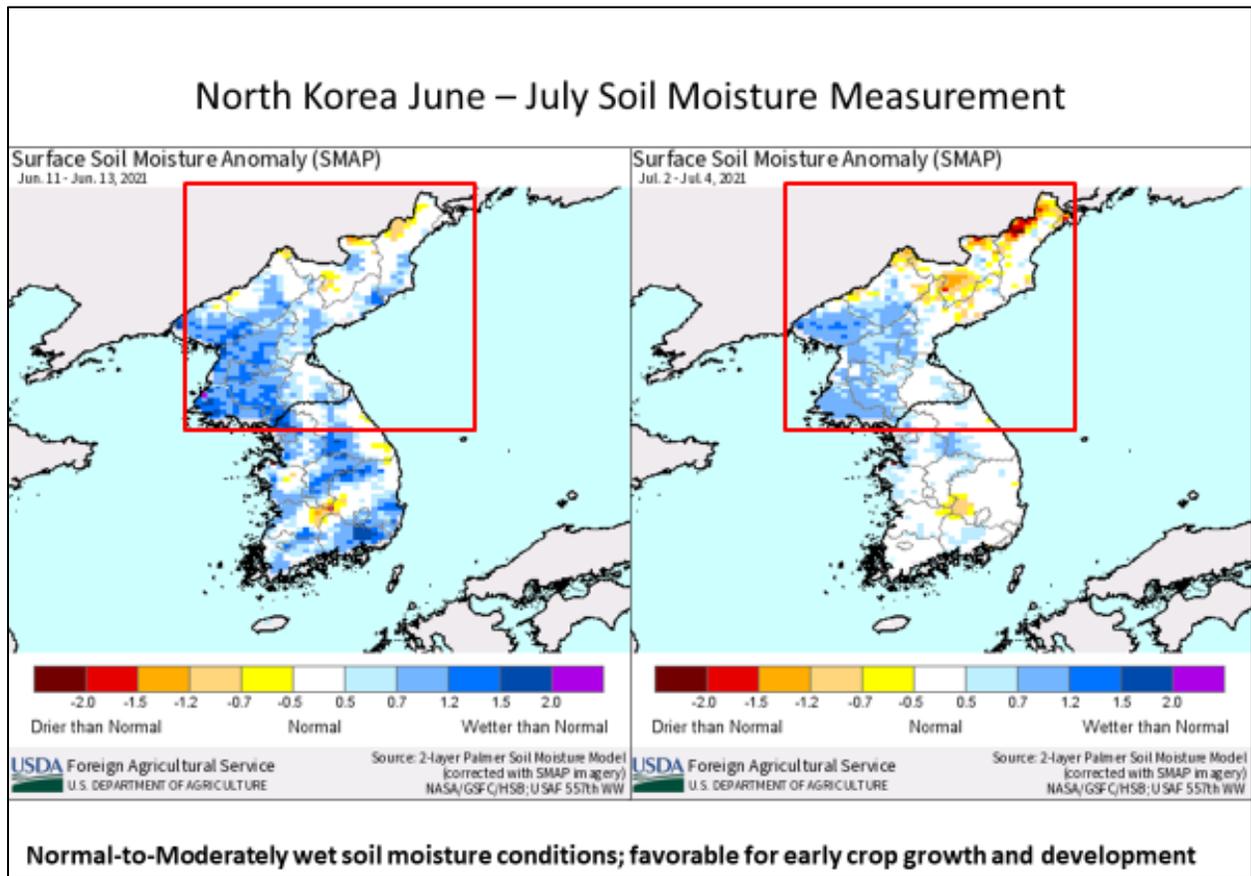


Figure 5. Soil moisture measurements and observations show favorable conditions for early crop growth and development.

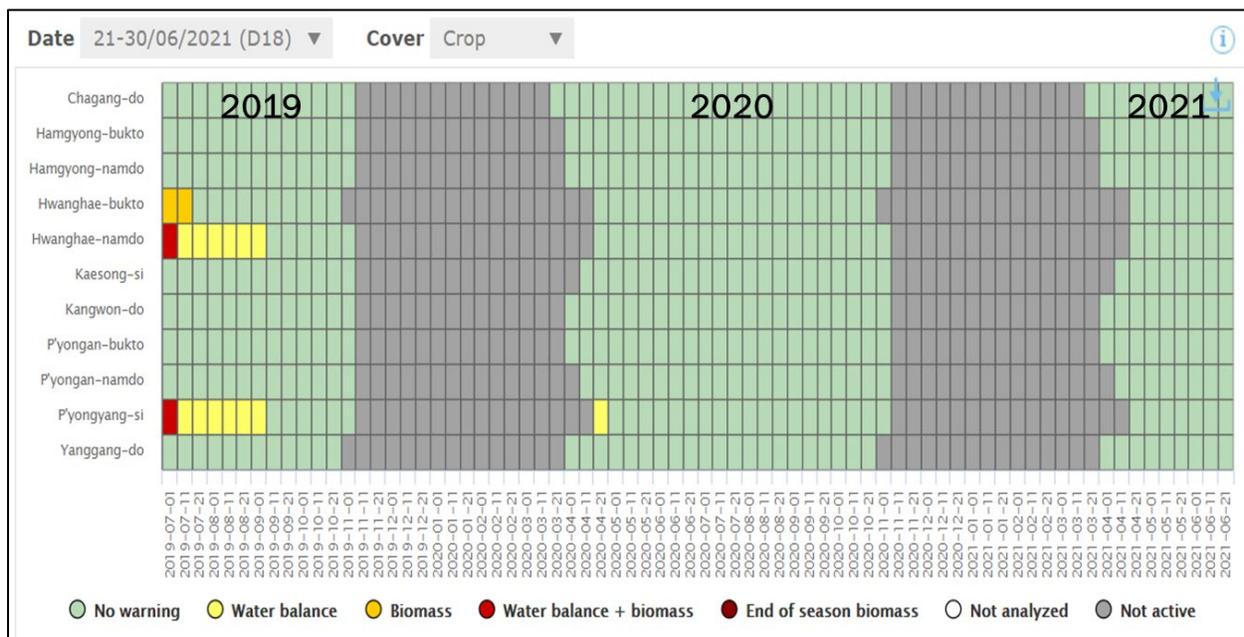


Figure 6. The matrix offers a table view of the history of the warnings in the two years preceding the selected date, June 30, 2021, for each of the subnational units in North Korea. The color of each cell corresponds to the warning levels described at the bottom of the matrix. The table columns are the 10-day periods, the table rows are the subnational levels. Credit: European Commission, EU Science Hub ASAP Country Assessments.

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