United States Department of Agriculture

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

October 12, 2023

Commodity Intelligence Report

An Overview of Japan Agriculture Production

Japan's main agricultural crops are rice, corn, wheat, soybeans, barley, peanuts, rapeseed, and oats. The main summer season crops (April to November) are rice, corn, soybeans, and peanuts. The summer crops are typically planted in May through June and harvested between August and November (Figure 1). Wheat and barley are the major winter crops planted in September through November and harvested in June and July. Rice's 5-year-average harvested area is 1.5 million hectares (mha), wheat 214,000 hectares (ha), soybeans 146,000 ha, barley 62,000 ha, peanuts 8,000 ha, and corn 1,200 ha. Rice is the largest crop by production volume, with a 5-year average of 10.4 million metric tons (mmt), followed by wheat at 991,000 metric tons (mt), soybeans 224,000 mt, barley 218,000 mt, peanuts 20,000 mt, corn 5,400 mt, rapeseed 4,000 mt, and oats 1,000 mt.

The marketing year (MY) 2023/24 summer crops have progressed well throughout the season in large part due to favorable rainfall and soil moisture conditions. The rainy season typically starts in April, and about 80 percent of the annual precipitation, on average, occurs between July and September. Overall, the 2023/24 season rainfall (Figure 2) has been above average and more than last year's. As a result, most major crop production regions have experienced average-to-above-average soil moisture conditions (Figures 3,4,5). The conditions in May to August were favorable for planting, crop establishment, and reproduction. During recent field travel observations and discusions with farmers in Hokkaido and Akita prefectures, it was confirmed that the favorable conditions continued to raise yield expectations from average to above-average, especially for rice, corn, soybeans, and peanuts. In August, with rice, corn, and soybeans at grain-filling and at advanced maturity stages, the conditions were exceptional to much better than average with the likelihood of yields above the long-term average.

USDA's MY2023/24 Japan crop forecasts and estimates incorporate the complex integration of reports from FAS/Tokyo and other sources with spatial analysis. USDA/FAS uses satellite-based observations of seasonal weather and soil moisture conditions (based on various agro-climatological sources), evaluation of crop growth performance (using Normalized Difference Vegetation Index, NDVI), FAS/Tokyo GAIN reports (Global Agricultural Information Network), and recent Japan field travel observations and discussions with farmers and agricultural experts. The NDVI time series graphs for the major crop production areas of Hokkaido prefecture (Figure 6) and Tohoku region (Figure 7), indicate favorable crop performance for the 2023/24 season

relative to the long-term average. In addition, NDVI images during the most critical crop stages of growth, development, and grain filling in early-season (April) (Figure 8) and mid-season (June) (Figure 9) reveal crop conditions at average-to-above average.

Rice Production:

USDA forecasts MY2023/24 total rice production (rough basis) at 10.23 million metric tons (mmt), down slightly (0.4 percent) from last year's 10.28, and down 2 percent from the 5-year average of 10.43 mmt. Area is estimated at 1.48 million hectares (mha), down 1 percent from last year's 1.5 mha, and down 3 percent from the 5-year average of 1.53 mha. The planted area 10-year record is 1.62 mha. Yield (rough basis) is forecast at 6.91 tons per hectare (t/ha), up 0.7 percent from last year and up 1 percent from the 5-year average of 6.82 t/ha (Figure 10). According to FAS/Tokyo and information collected during recent field travel observations and discusions with farmers, the decrease in planted area is primarily attributed to the exiting of aging farmers from rice production and declining table rice demand. Rice harvested area has decreased year-over-year, but more significantly since MY2014/15. Japan's MAFF (Ministry of Agriculture, Forestry, and Fisheries) reported that in MY2022/23 harvested area totaled 1.497 million hectares, 1.5 percent lower than the previous year. The yield decreased 0.9 percent, to 6.86 metric tons per hectare (rough basis). Yield declines were attributed to a lack of sunshine during the summer and persistent rains during grain filling periods in major rice producing regions like Niigata Prefecture. As a result, total production in 2022/23 season decreased 2.4 percent, to 10.28 million metric tons.

Rice is grown throughout Japan; the central and northern regions including Tohoku, Kanto, Chubu, and Hohhaido (Figure 11) are the major producers with a combined area of approximately 1.4 million hectares. Almost all rice produced in Japan is Japonica, short-grain rice. There are five major rice categories in Japan: table rice, processing rice, feed rice, flour rice, and export rice. Rice is typically sown in nurseries in March and transplanted (98 percent is transplanted) in the field starting in May and continuing through June. Rice harvesting typically starts in September through November. The long-term trend shows paddy area has been declining year-over-year primarily attributed to the shifting of table rice area to other crops including wheat and soybeans due to declining consumption demand and the government's subsidy program, the Rice Production Adjustment Program (RPAP). The RPAP is aimed to encourage production of alternative "strategic crops" (wheat, barley, soybeans, feed and processing rice) as a strategy for managing oversupplies of table (food) rice. The RPAP involves direct payments for "strategic crops" grown on rice paddies. The program was initially scheduled to discontinue in 2018, however, according to most experts, the program had overall limited impact over the years due to relatively higher rice prices attracting farmers and resulting in rebounding table rice production.

The Ministry of Agriculture, Forestry and Fisheries (MAFF) support payment program has been encouraging some farmers to shift production from table rice to rice for feed. According to MAFF in MY2022/23, harvested area of feed rice rose significantly by 23 percent, to 142,055 hectares, and production increased to an all-time high of 692,000

metric tons. However, according to FAS/Tokyo and MAFF's January planting intention survey, the MY2023/24 feed rice production decreased because many farmers opted to increase planting wheat, barley, and soybeans instead. To encourage farmers to plant high yield rice varieties for feed, starting from MY2024/25 through MY2026/27, MAFF plans to reduce support payments for table rice varieties shipped as feed rice, but will maintain the current level of payments for high yield varieties used exclusively for feed rice. Due to concerns over the mixing of feed rice with table rice, many famers grow table rice varieties and ship them as feed rice. The change in support payments is expected to discourage this practice.

Wheat Production:

USDA forecasts Japan's MY2023/24 wheat production at 1.17 million metric tons (mmt), up 12.5 percent from last year's 1.04 mmt. Area is estimated at 235,000 hectares (ha), up 3.5 percent from last year's 227,000 ha, and up 9.8 percent from the 5-year average of 214,000 ha. The planted area 10-year record is 227,000 ha. Yield is forecast at 4.98 tons per hectare (t/ha), up 8.7 percent from last year's 4.58 t/ha, and up 7.6 percent from the 5-year average of 4.63 t/ha (Figure 12). Wheat is produced throughout Japan with Hokkaido prefecture as the major production region (Figure 13). Nearly all wheat produced in Japan is winter wheat; it is planted in September through November and typically harvested from June through August. Spring wheat is limited (8 percent of wheat plantings) and is planted in March through April and harvested in August through September. During recent field travel observations and discusions with wheat farmers in Hokkaido, one of their main concerns was that wheat harvest often coincides with the start of the rainy season, resulting in harvest delays and sometimes poor quality wheat. The government continues to promote wheat as a substitute crop in rice paddies and as a rotational crop with beans, sugar beets, and potatoes in dry fields. In response to increasing demand for domestically produced wheat, Japan's wheat planted area gradually increased year-over-year since 2013, averaging 213,000 hectares.

Barley Production:

USDA forecasts Japan's MY2023/24 barley production at 237,000 metric tons (mt), up 1.7 percent from last year's 233,000 mt, and up 9 percent from the 5-year average of 217,800 mt. Area is estimated at a 10-year record 64,000 hectares, up 0.9 percent from last year's 63,400 ha, and up 1.6 percent from the 5-year average of 62,400 ha. Yield is forecast at 3.7 tons per hectare, unchanged from last year but up 6 percent from the 5-year average of 3.49 t/ha (Figure 14). Barley is mainly produced in Hokuriku (Northwest Honshu) (Figure 15).

Soybean Production:

USDA forecasts MY2023/24 Japan soybean production at 253,000 metric tons (mt), up 6.3 percent from last year, and up 13 percent from the 5-year average of 224,000 mt. Harvested area is estimated at 155,000 hectares, up 2.6 percent from last year's 151,000 ha and up 6 percent from the 5-year average of 146,000 ha. The harvested

area 10-year record is 151,000 ha. Yield is forecast at 1.63 tons per hectare, up 3.2 percent from last year's 1.58 t/ha, and up 6 percent from the 5-year average of 1.53 t/ha (Figure 16).

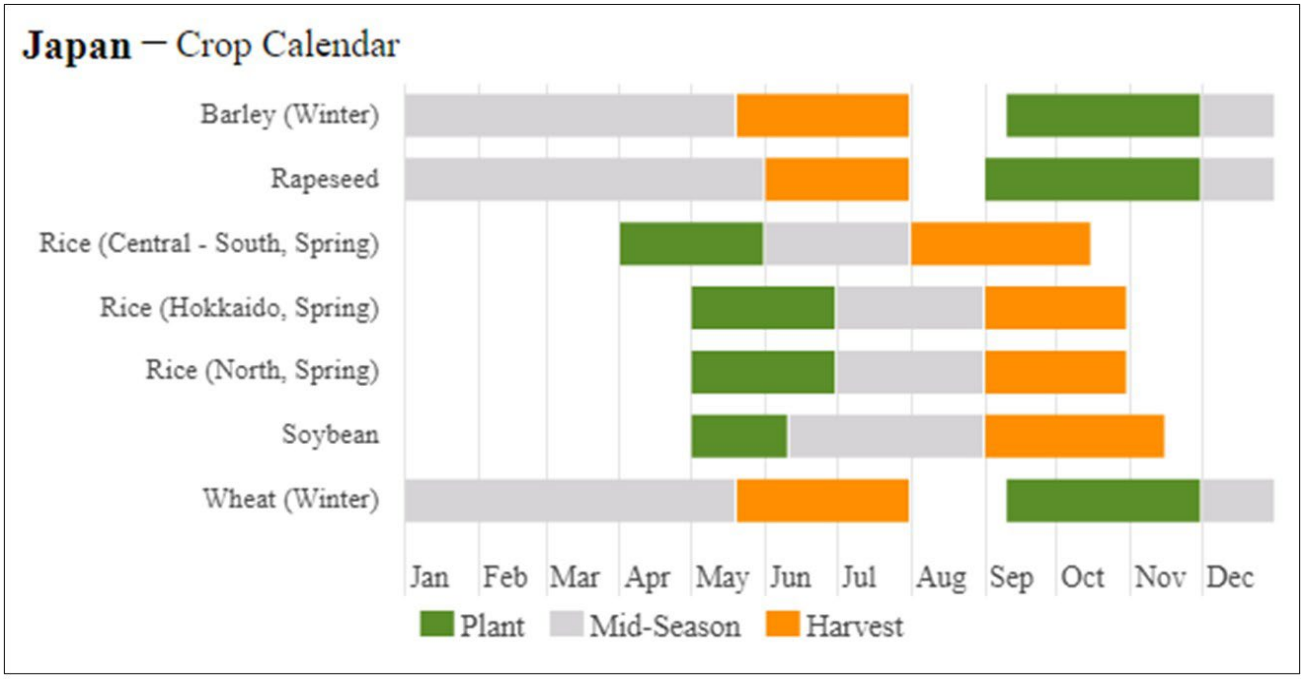
Soybeans are largely produced in Hokkaido prefecture (40 percent), followed by Tohoku region (22 percent), Chubu region (13 percent) and Kyushu region (12 percent) (Figure 17). As indicated during recent field travel observations and discusions with farmers, Hokkaido's soybean yield is much higher than that of other prefectures because Hokkaido farmers plant on large dry fields, rather than small rice paddies. In recent years, Japan adopted measures to increase soybean production, including direct payment incentives for shifting rice paddy areas to soybeans. According to FAS/Tokyo, in the MY2023/24 season, the soybean harvested area increase was attributed primarily to farmers' response to the high price of food grade soybeans and shifting area from other crops including rice. In 2017, approximately 120,800 hectares of rice paddy were estimated to have shifted to soybeans. Based on the 2020 Japanese government's Basic Plan for Food, Agriculture and Rural Areas, MAFF aims to increase Japan's soybean production area to 170,000 ha and soybean yield to 2.0 t/ha by 2030. Japan's soybean production is predominantly non-genetically engineered (GE) food-grade soybean varieties, of which approximately 80 percent are distributed via the Japan Agricultural Cooperatives (JA) to food manufacturers, such as tofu, natto, or miso makers. The remainder is typically sold for home cooking, directly to small businesses, or used for seed.

Corn Production:

USDA forecasts MY2023/24 corn production at 14,000 mt, up 27.3 percent from last year's 11,000 mt, and up 159 percent from the 5-year average of 5,400 mt. Area is estimated at 2,000 ha, unchanged from last year, and up 67 percent from the 5-year average of 1,200 ha. The planted area 10-year record is 2,000 ha. In recent years there has been a dramatic change in corn area partly due to government "rice area reduction policy" that provides incentives to encourage farmers to reduce table rice production (due to decline in consumption) instead plant alternative crops such as corn, wheat. Yield is forecast at 7 tons per hectare, up 27.3 percent from last year's 5.5, and up 63 percent from the 5-year average of 4.3 tons per hectare.

Summary:

With harvest of the winter crops (wheat, and barley) nearly complete, and most of the summer crops (including rice, corn, and soybeans) at grain filling and advanced maturity stages, the current crop outlook for Japan indicates yield outcomes at or above the long-term median yield expectation. Some variation in predicted yield outcomes exists within some cropping regions, however, based on information collected during direct field observations conducted in August, summer and winter crops across most Japan grain regions experienced ideal to much better than average conditions. Overall, expectations for Japan's MY2023/24 production are above the long-term average relative to the recent 5-year avearge.



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Source: USDA/FAS Crop Explorer

Figure 1. Japan agricultural crop calendar.

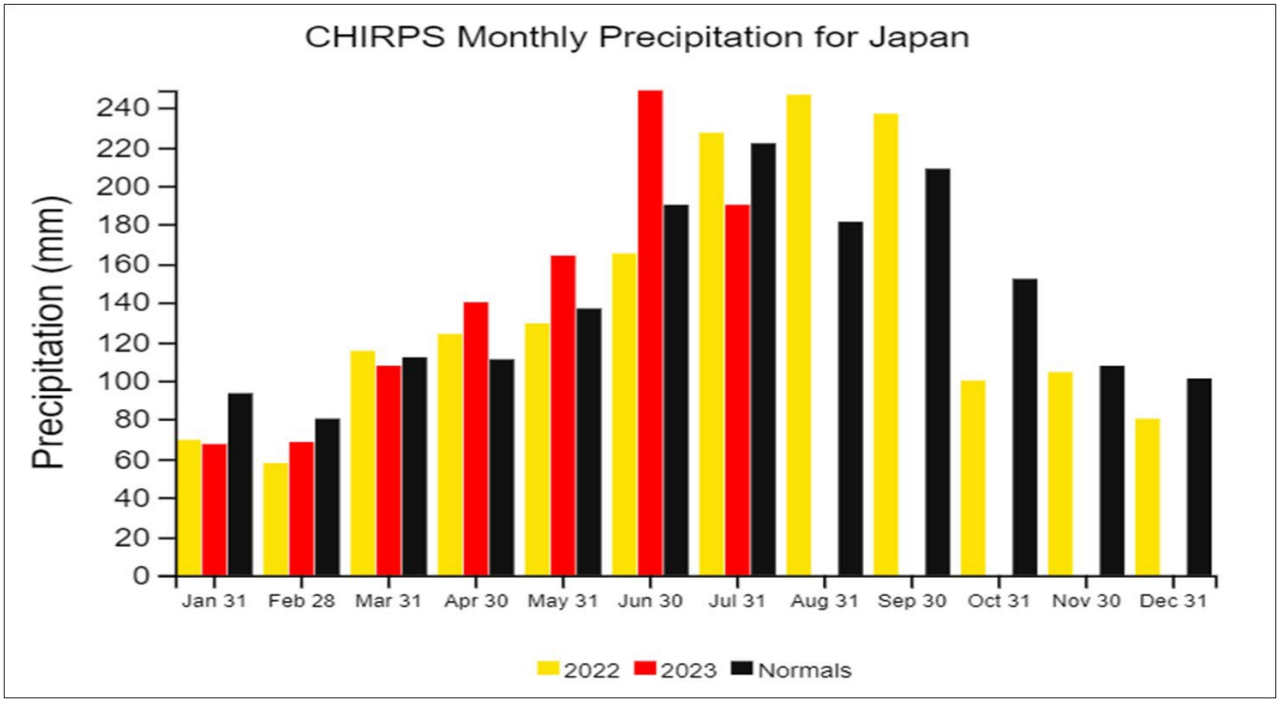

Figure 2. Japan January - August precipitation soil distribution, shows wetter-than-normal conditions across the major growing regions. Source: Climate Hazards Center, University of California, Santa Barbara

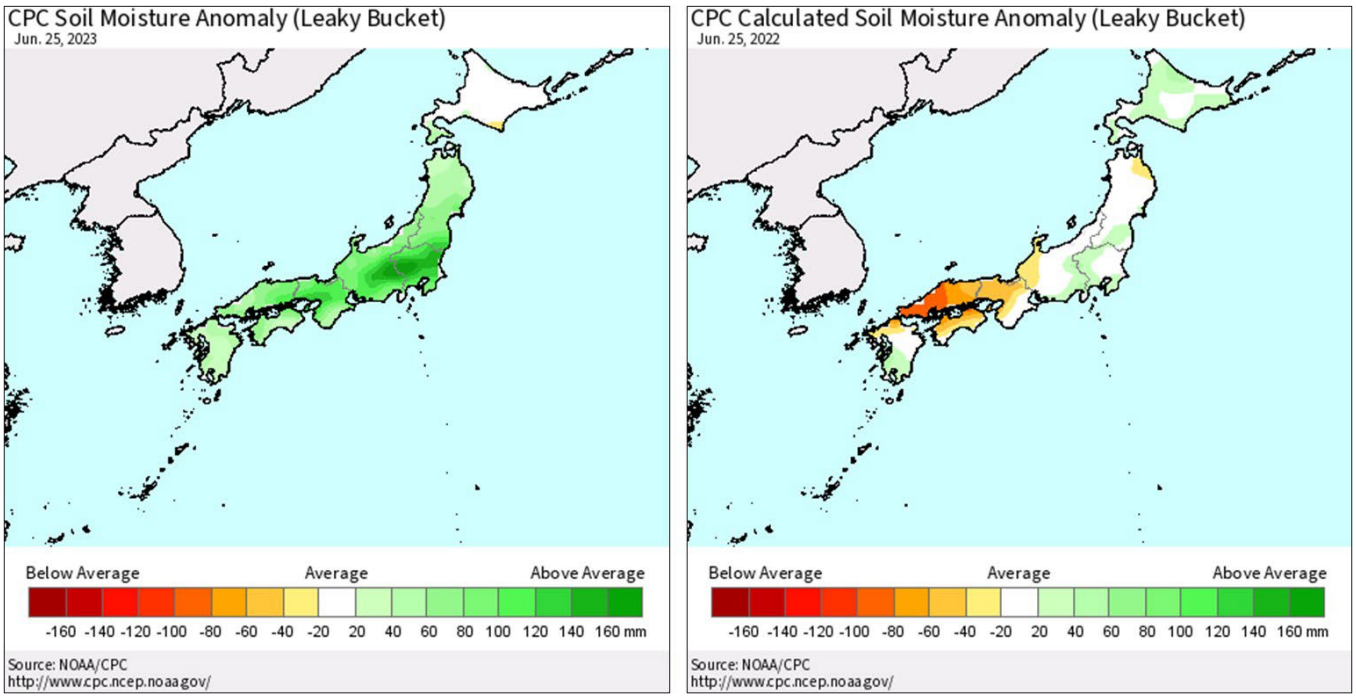

Figure 3. Japan early season (June 2023, left) soil moisture distributions were better compared to the same period 2022 (right). The map shows average-to-above-average soil moisture conditions across all the major production regions.

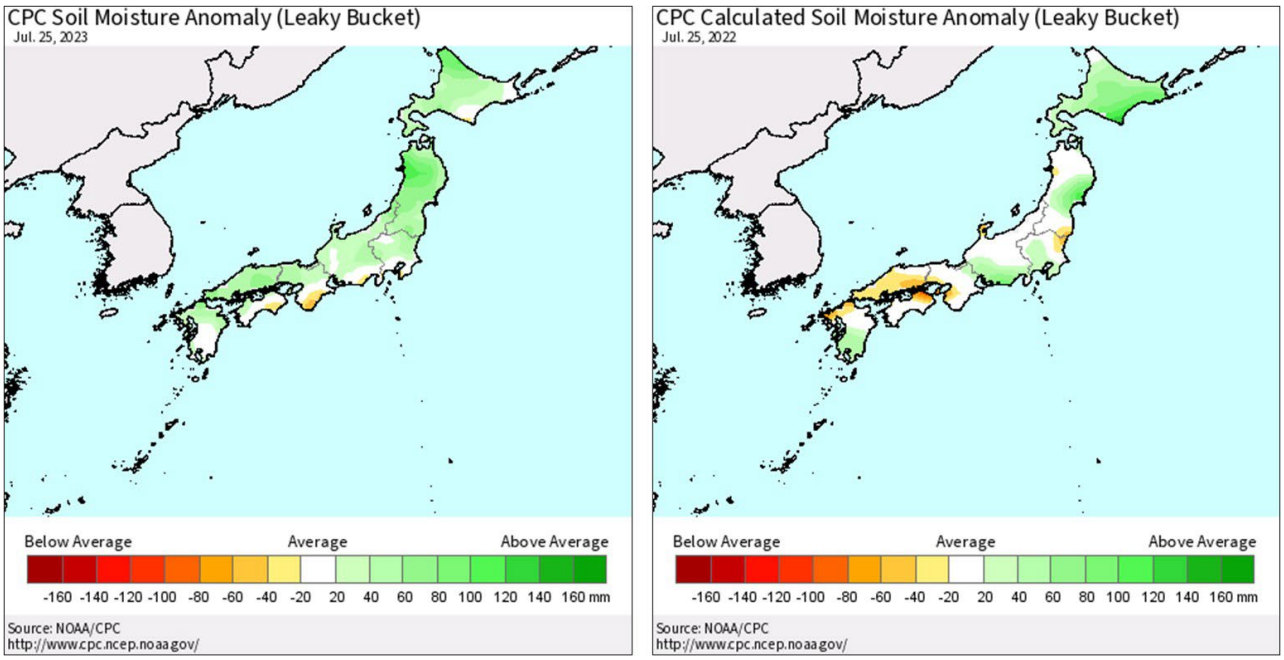

Figure 4. Japan mid-season (July 2023, left) soil moisture distributions were better compared to the same period in 2022 (right). The map shows predominantly above-average soil moisture conditions across all the major production regions.

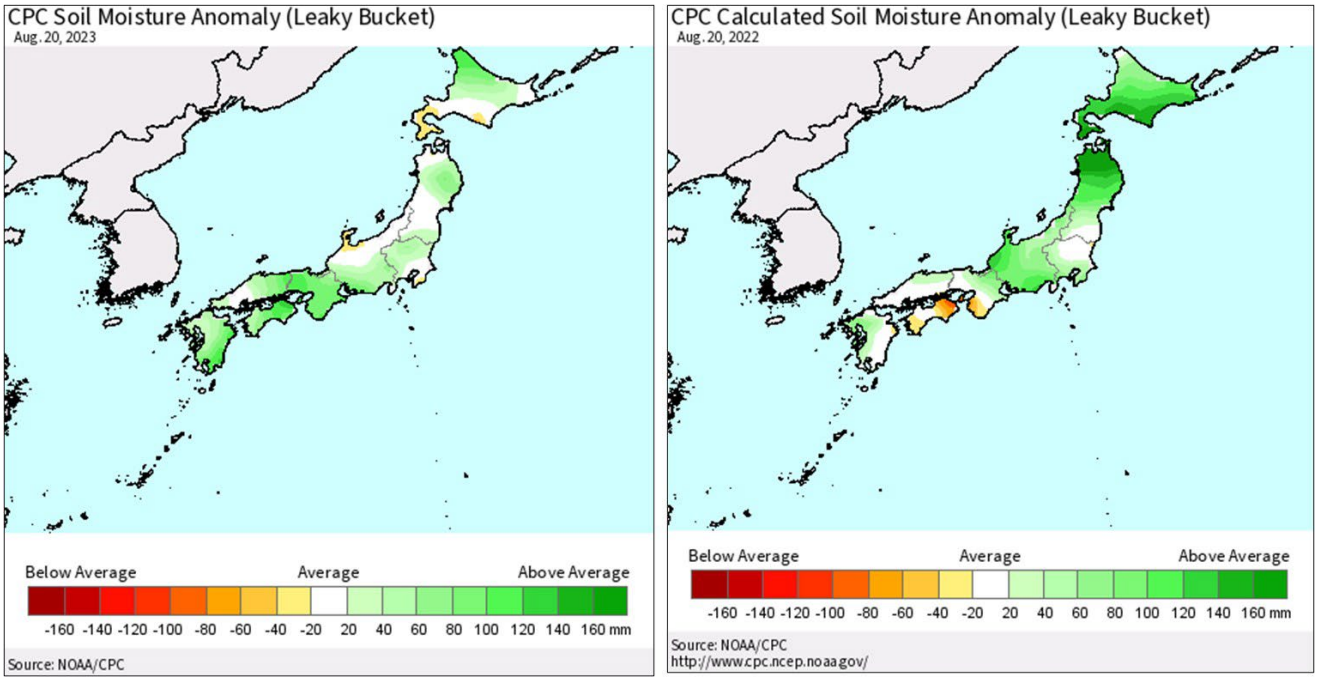

Figure 5. Japan late-season (August 2023, left) soil moisture distributions were almost the same as 2022 (right). Both years show predominantly above-average soil moisture conditions across all the major production regions.

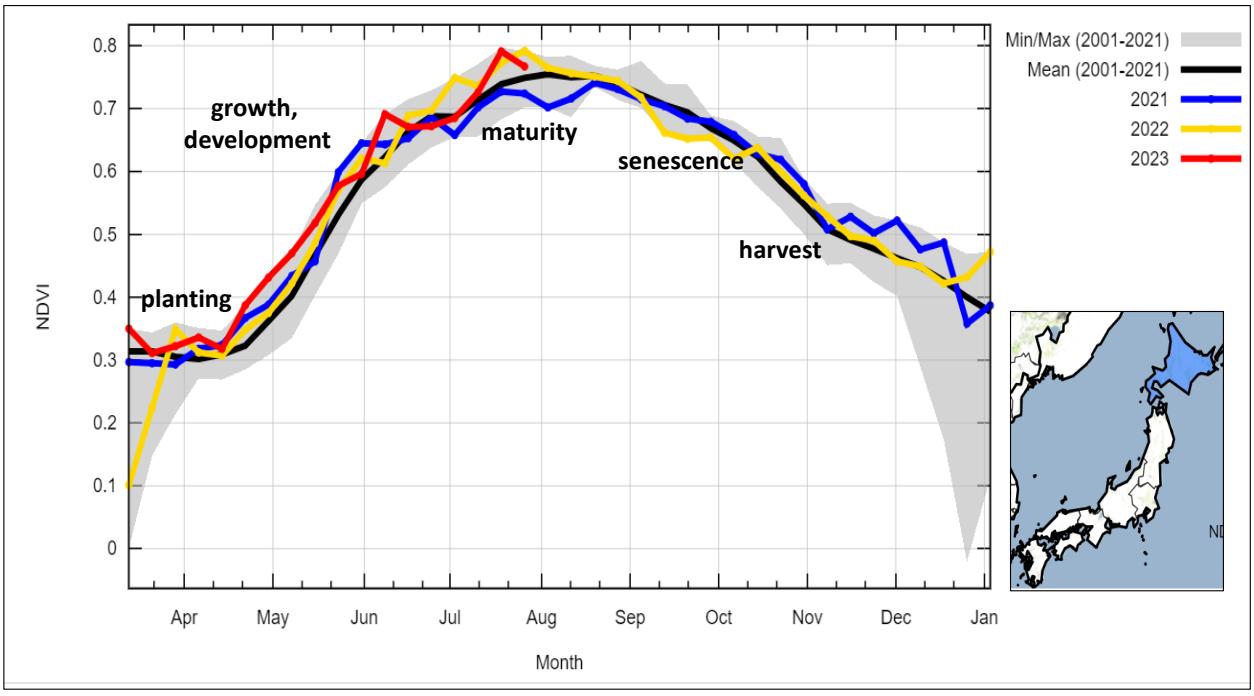

Figure 6. Hokkaido prefecture satellite-derived Normalized Difference Vegetation Index (NDVI) time series data indicate that April through August the 2023/24 season crop conditions trended above the long-term average, similar to the previous two seasons; there is a high probability of favorable or above-average yield expectations. The NDVI is based on satellite imagery acquired by the Moderate Resolution Imaging Spectroradiometer (MODIS) on NASA's Aqua satellite over Hokkaido in April through August 2023.

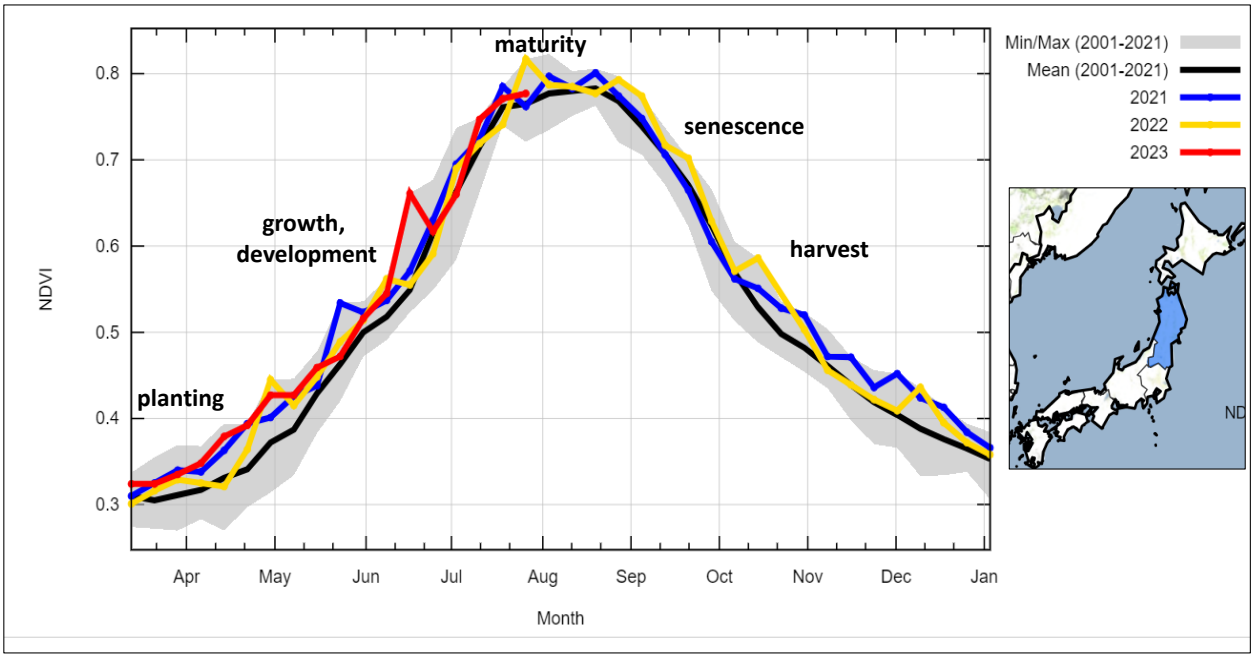

Figure 7. Tohoku region satellite-derived Normalized Difference Vegetation Index (NDVI) time series data indicate that April through August the 2023/24 season crop conditions trended about the long-term average, similar to the previous two seasons; there is a high probability of favorable or average yield expectations. The NDVI is based on satellite imagery acquired by the Moderate Resolution Imaging Spectroradiometer (MODIS) on NASA's Aqua satellite over Hokkaido in April through August 2023.

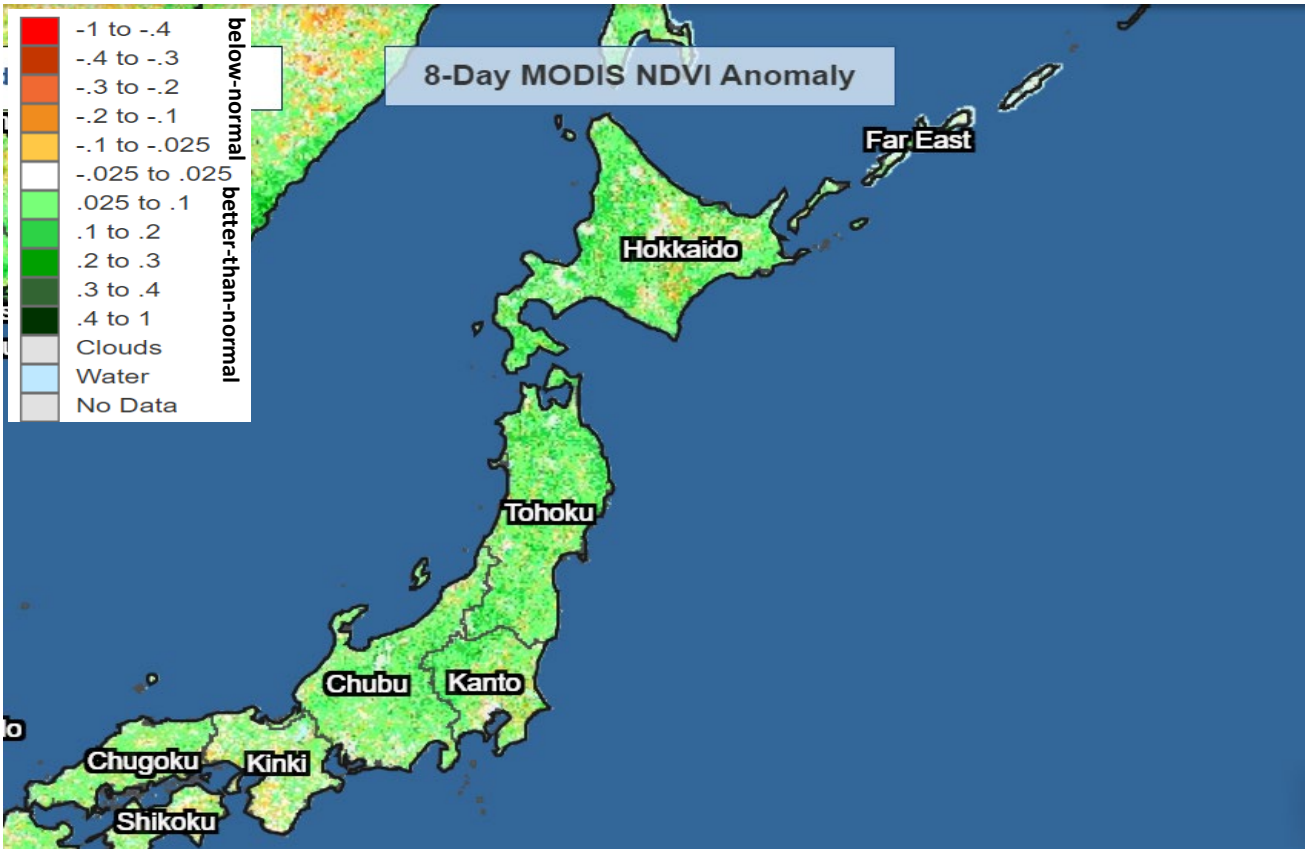

Figure 8. Early season (April 2023) satellite-derived NDVI anomaly image. The data indicated the crop conditions and performance (crop establishment and development) were-above-normal conditions across all the major crop production regions. The NDVI image shows the crop performing above-average in areas in light-to-bright green.

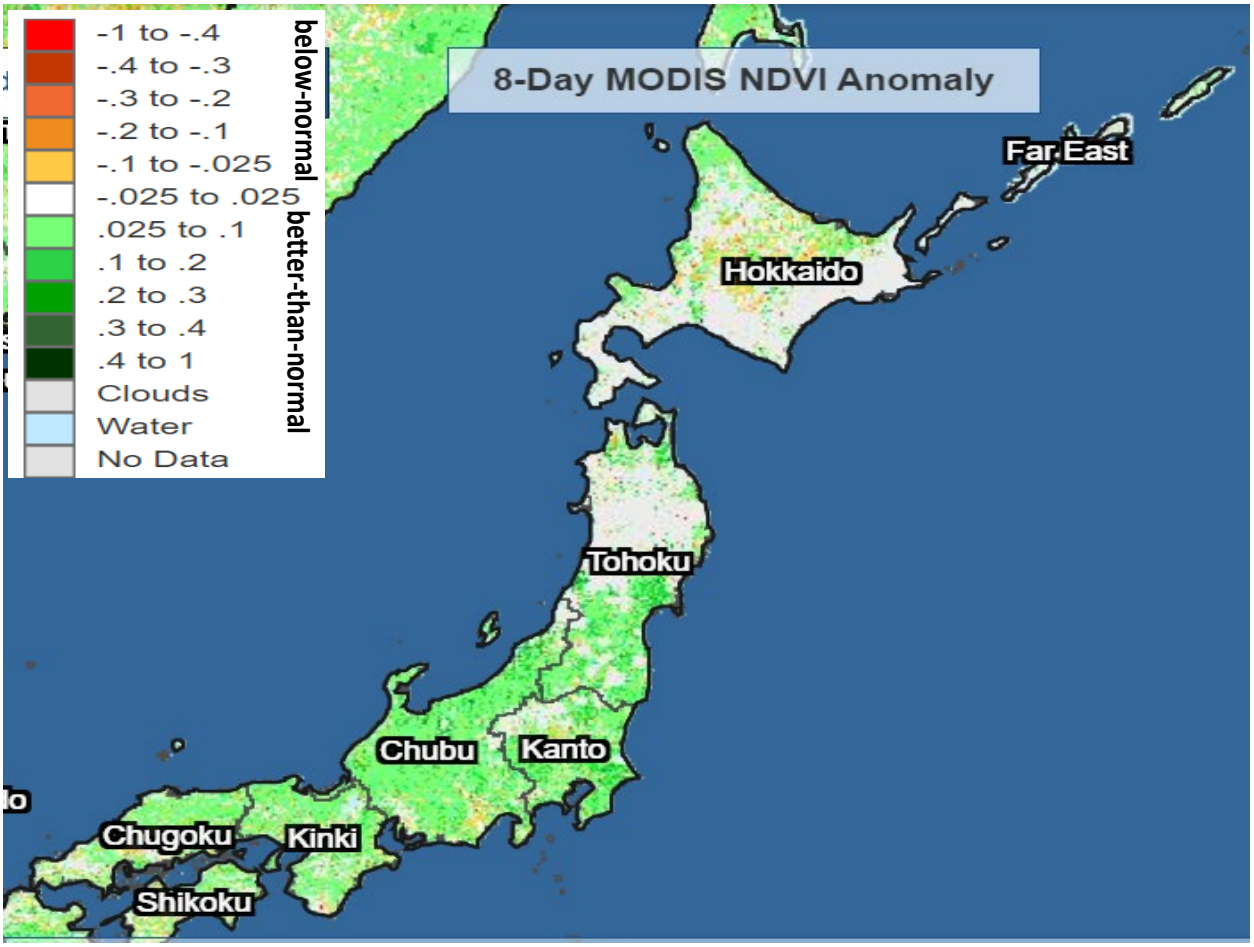

Figure 9. Mid-season (June 2023) satellite-derived NDVI anomaly image. The data indicated the crop conditions and performance (advanced development and grain filling stages) were average-to-above-normal all across the major crop production regions. The NDVI image shows the crop performing above-average in areas in light-to-bright green and average indicated by white areas.

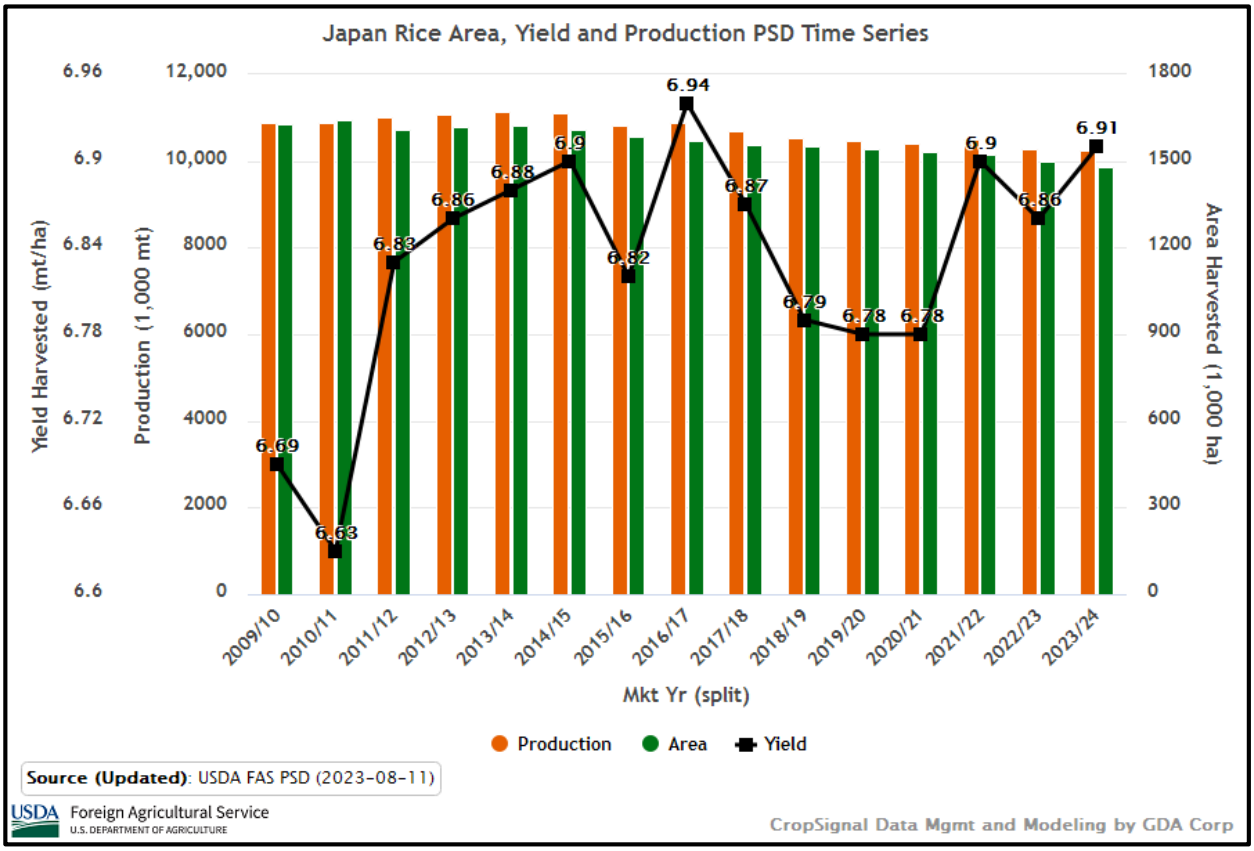

Figure 10. Japan Rice Area, Yield, and Production PSD Time Series

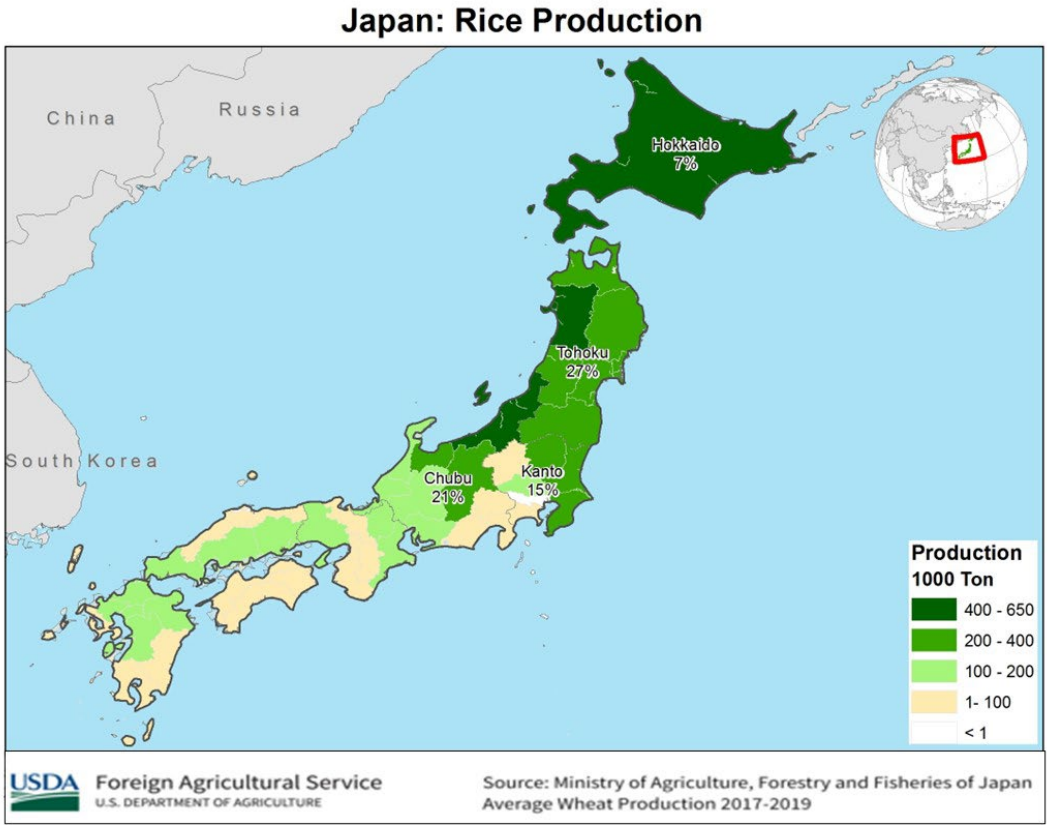

Figure 11. Japan major rice production regions

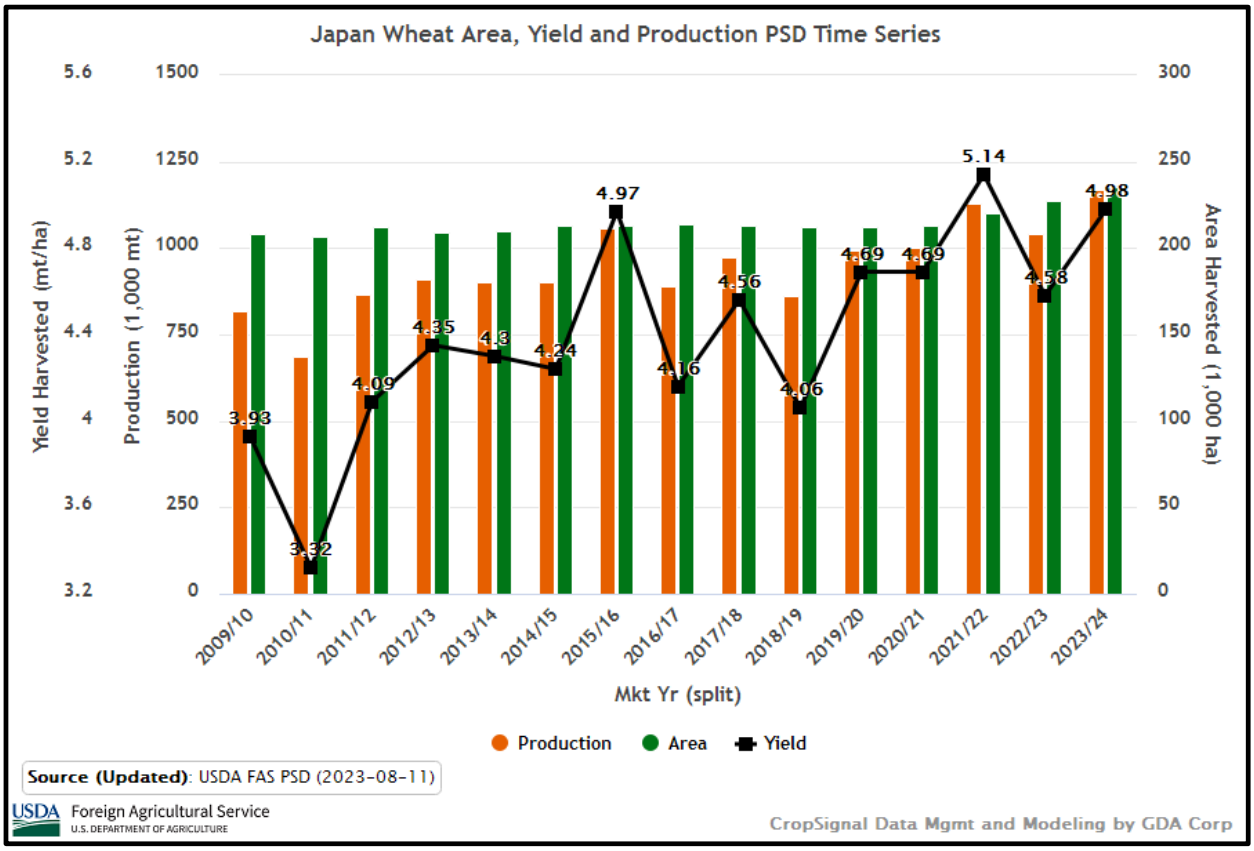

Figure 12. Japan Wheat Area, Yield, and Production PSD Time Series.

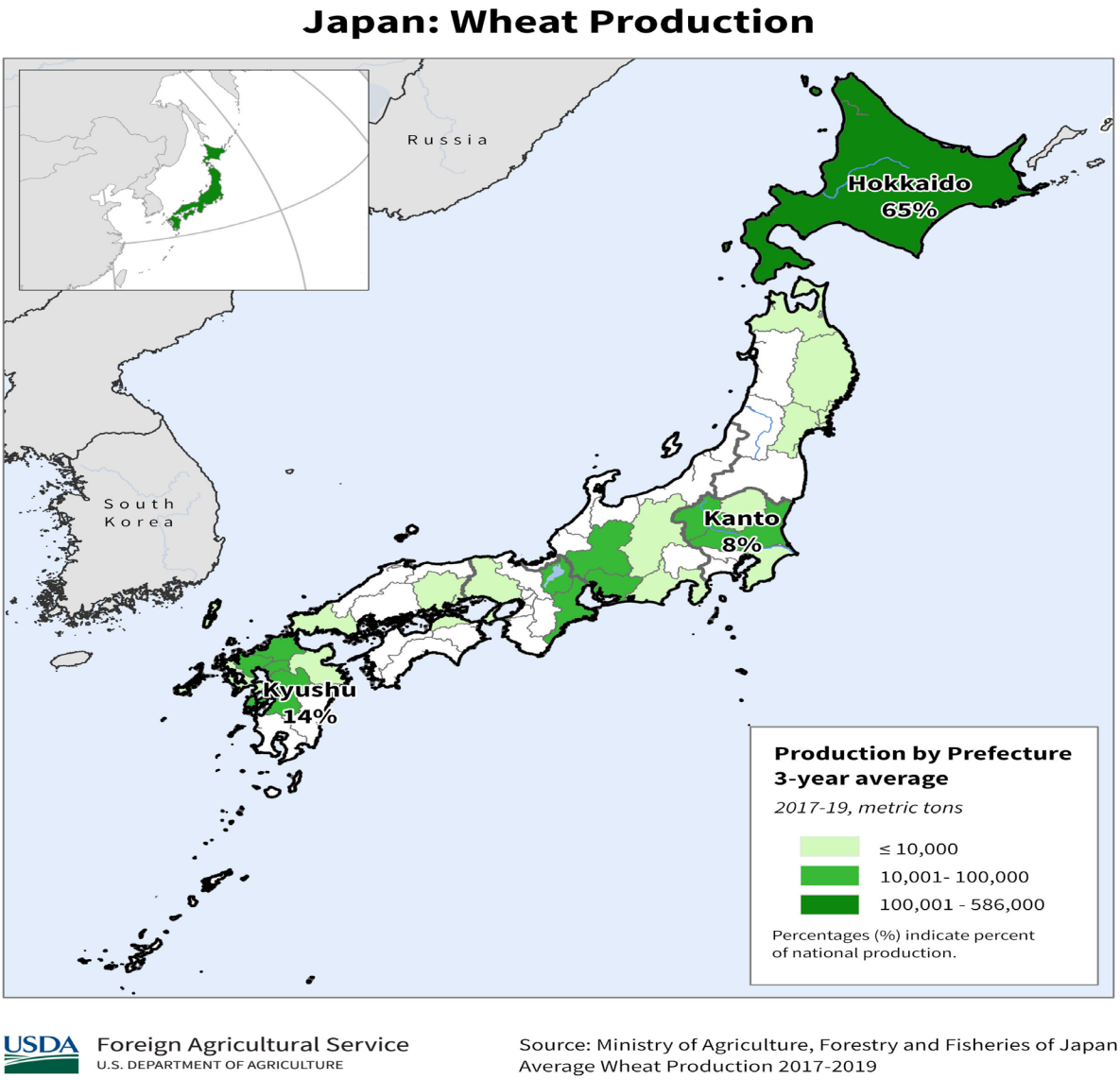

Figure 13. Japan major wheat production regions

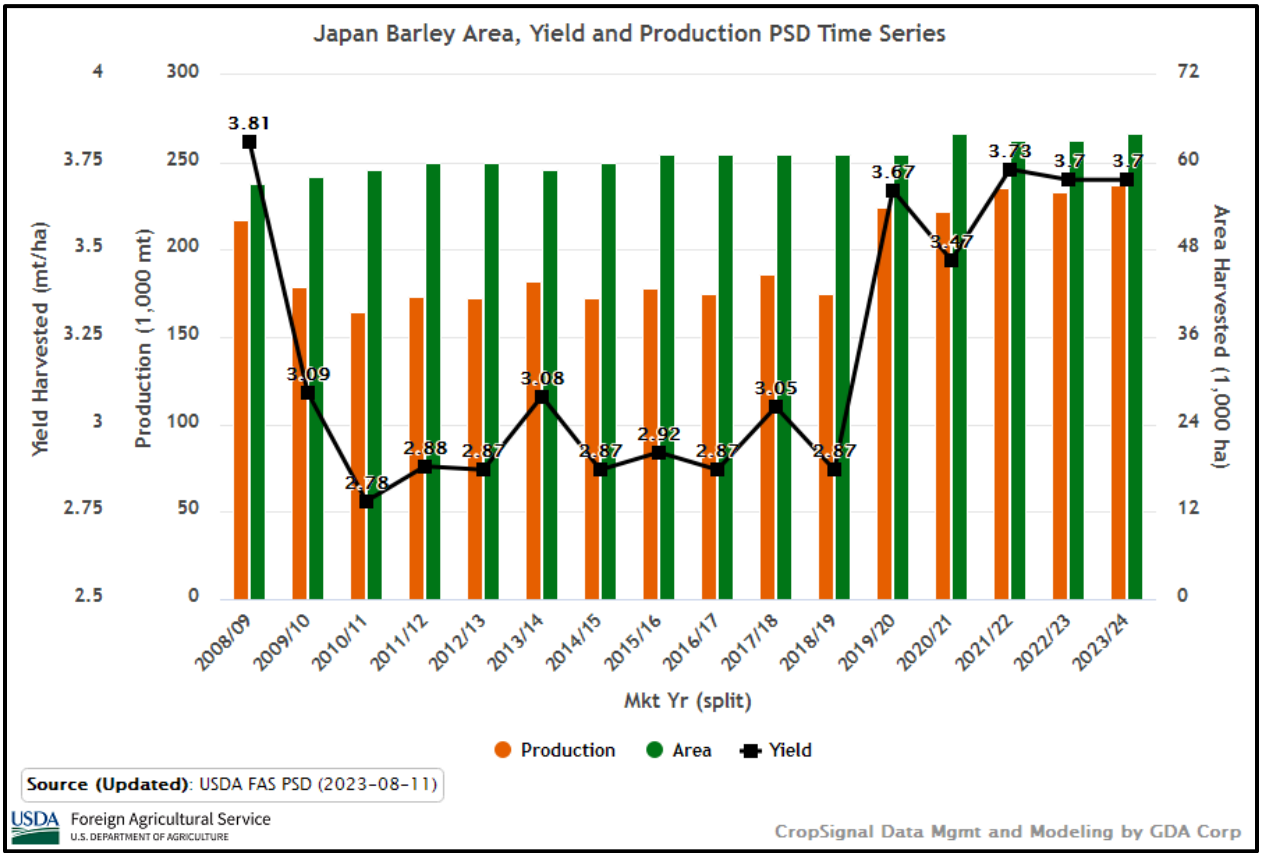

Figure 14. Japan Barley Area, Yield, and Production PSD Time Series

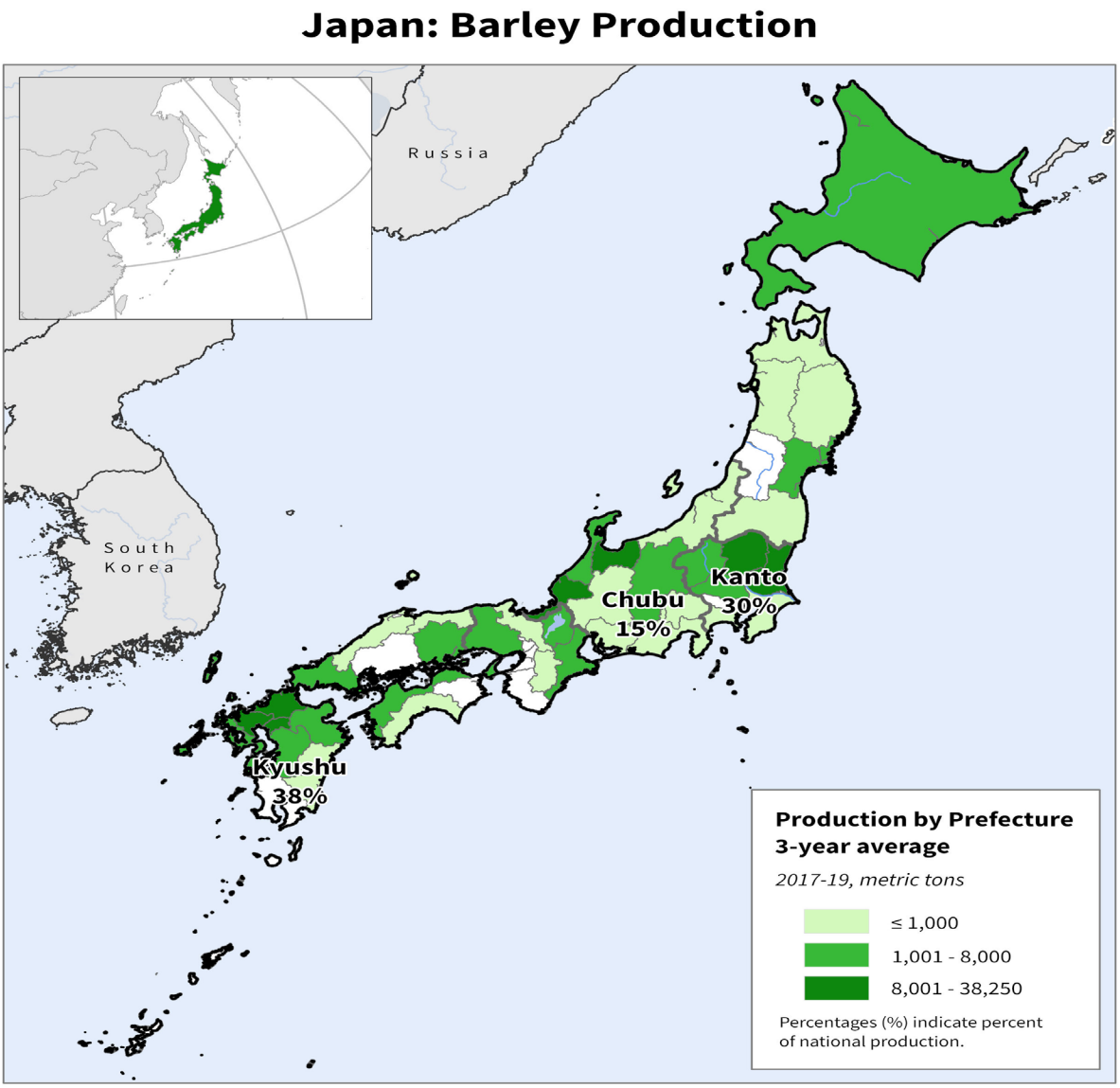

Figure 15. Japan major barley production regions

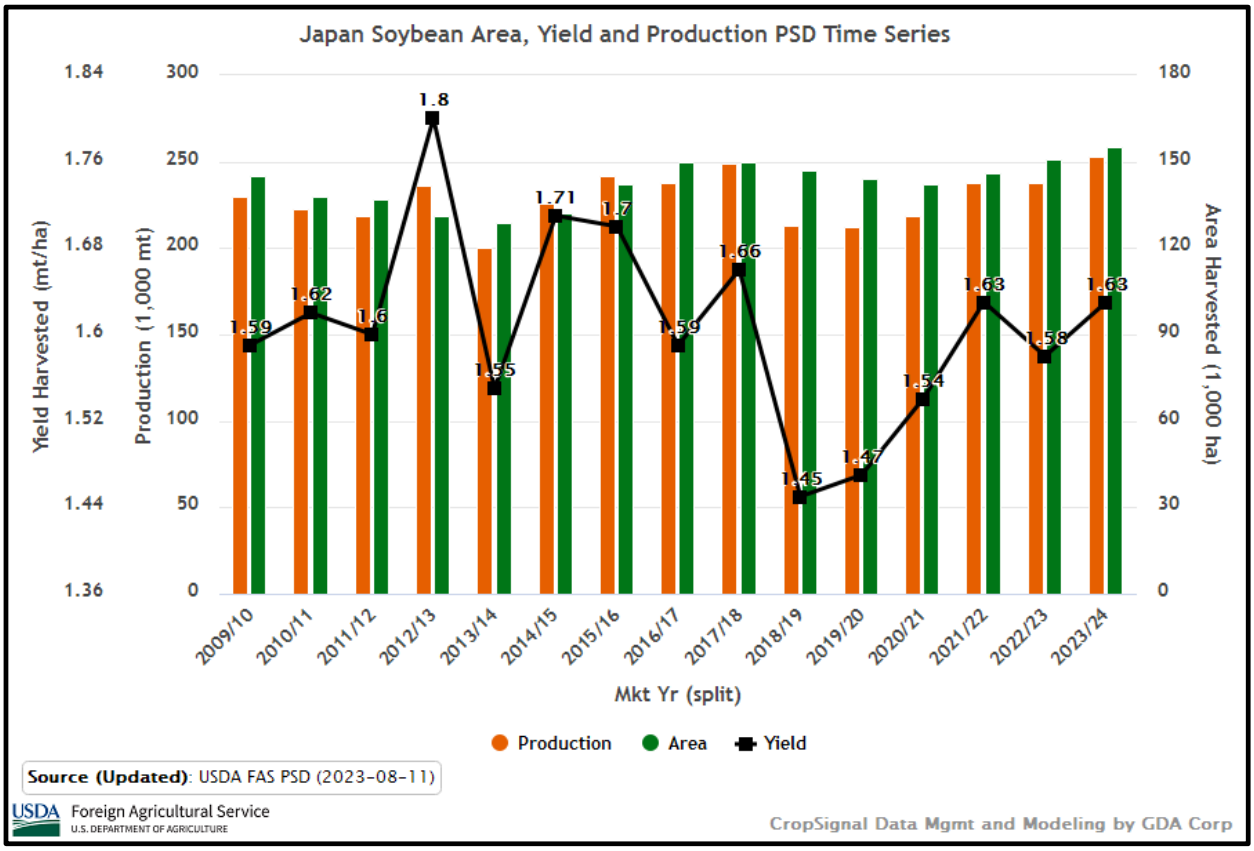

Figure 16. Japan Soybean Area, Yield, and Production PSD Time Series

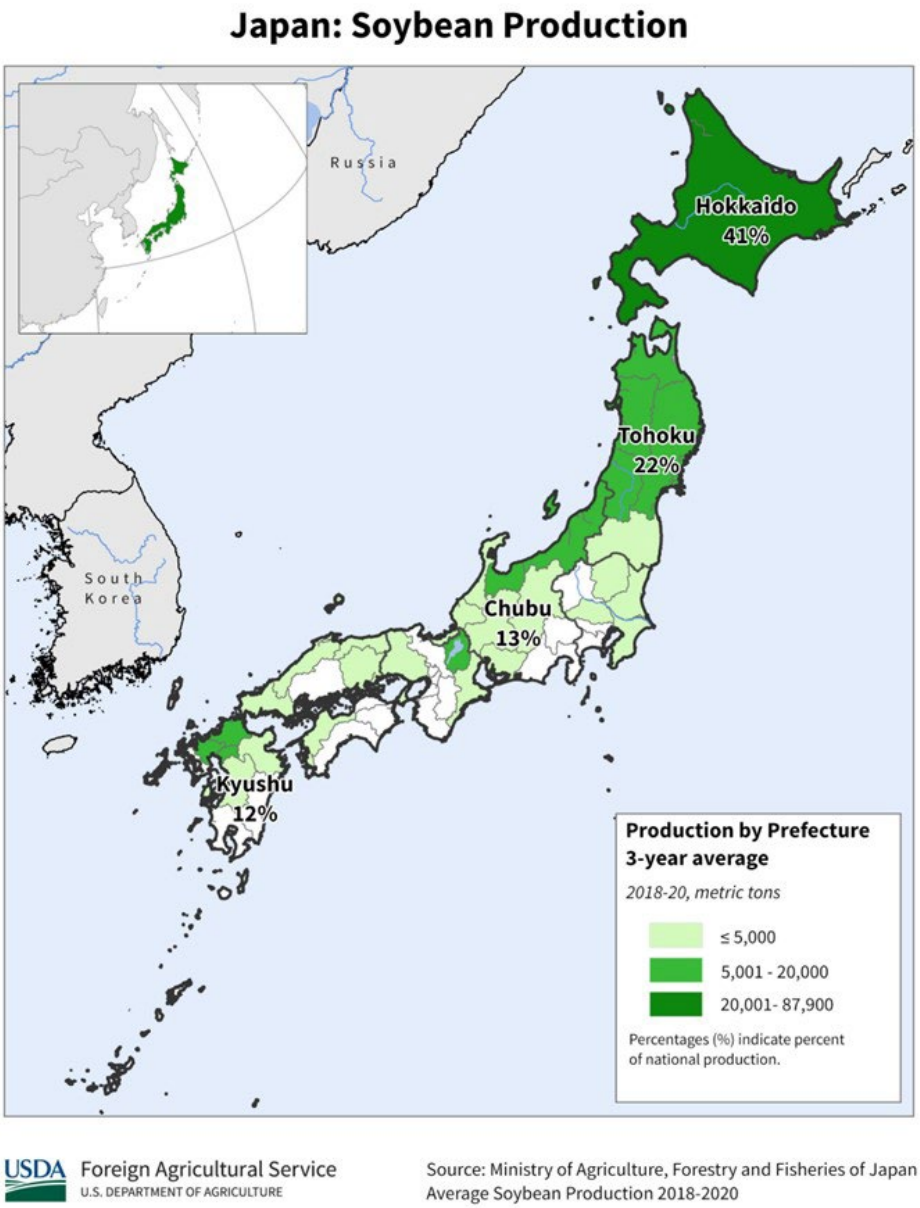

Figure 17. Japan major soybean production regions

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https://geo.fas.usda.gov/GADAS/index.html