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U.S. DEPARTMENT OF AGRICULTURE

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Global Market Analysis
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Commodity Intelligence Report

European Union MY 2023/24 Season Summary: Adverse Weather Limited EU Production

The European Union's (EU's) 2023 fall harvest ends a challenging season, notable for its extreme weather. The marketing year (MY) 2023/24 season was shaped by record high temperatures, prolonged droughts, and periodic heavy rainfall. A shifting weather pattern with strong areas of blocking high pressure frequently prevented normal weather from prevailing. These blocking high pressure systems steered the course of the season's weather by either concentrating, strengthening, or impeding events. The results were intensified weather conditions, whether it was drought, heavy rain, or excessive heat. These unfavorable combinations prevented EU agriculture from reaching a greater potential, relegating the crops to near-average levels in MY 2023/24.

Spring Conditions

After a mild but dry 2022-2023 winter, autumn-sown crops emerged in good condition across most of the continent. The dominant driving weather feature during spring 2023 (March through early May) was a strong, blocking high pressure system that remained locked in place over southwestern Europe. This deflected cool and wet conditions around the block, to the north and east, slowing the progress of spring and early summer crop development for most of Europe (see Figure 1).

Meanwhile, the system prevented essential rain-producing storms from reaching areas of southwest Europe and Northwest Africa. These milder Mediterranean regions have an earlier crop season than the countries farther north, so their spring moisture deficit occurred during critically important, water-dependent periods of reproduction and grainfill. The same pattern also led to incursions of much-above-normal temperatures during late April on the Iberian Peninsula, enhancing evaporation rates, intensifying drought, and causing plant stress. Satellite-derived Percent Average Seasonal Greenness for the month of May depicts the very poor conditions in Spain from the drought and heat that greatly reduced crop potential (see Figure 2).

Conditions Flip

During late May and in June, the weather block shifted north, suddenly shutting off precipitation and creating rainfall deficits in the large wheat (see Figure 3) and rapeseed belts (see Figure 4) of the northern European countries. The new drought was centered around the Baltic and North Seas. Moisture deficits mounted in northern France, Germany, Poland, Czech Republic, the Baltic states, and Scandinavia. Outside the EU, the United Kingdom also dried out (see Figure 5). The impact on these countries was

significant. The later timing of drought in the north coincided with the moisture-sensitive periods of reproduction and filling stages of wheat and rapeseed. Simultaneously, the northward shift in the blocking weather pattern allowed a coinciding period of heavy rain to flow into southern Europe, temporarily relieving the moisture-starved Iberian Peninsula, southern France, Italy, and the western Balkan states (see Figure 5). The satellite-derived Normalized Difference Vegetation Index shows vegetation conditions in most of the EU (except for Spain and Portugal) in the spring to be above average, but as the drought became entrenched in the northern grain and rapeseed belt, the crop rapidly deteriorated to below average and below the 2022/23 conditions (see Figure 6).

Summer Conditions Flip Again

As winter wheat neared harvesting, the weather regime shifted yet again, with a return to a very wet pattern in northern and central areas of the EU in late July while dryness dominated the south again. Heavy rains continued in August (see Figure 7). The increased rainfall in northern areas was too late to help winter grains rebound; It slowed crop progress, prevented field activities, and delayed the harvest in major producing areas of northeast France, Germany, Poland, and central Europe. The rain-soaked wheat crops were impacted by lodging and quality issues. The EU's wheat crop, which appeared to be at a bumper level in May, was reduced to a near-average harvest, with a large percentage of the crop not suitable for milling. Rapeseed, harvested a little earlier, was less impacted by the excessive summer rains.

Crops in Spain were severely impacted by extreme heat and long-term drought for much of the season. When dryness returned to Spain at the end of June, it was accompanied by a prolonged heat wave that became entrenched, lasting through August. Record highs were common, with temperatures in Andalucia reaching over 44°C (111° F) in July (see Figure 8). Reservoir levels dwindled all season, reaching as low as 20 to 30 percent of capacity in southern Spain. Many of Spain's farmers, particularly those with summer crops, are reliant on limited irrigation supplies, but the country has been in a multi-year drought, resulting in consecutive years of planting restrictions. The major crops in Spain, such as wheat, barley, corn, rice, sunflowerseed, and cotton, are having their lowest production levels in over a decade.

Spring Planted Crops

Spring-planted crops in the EU include corn (see Figure 9), sunflower (see Figure 10), and summer barley (see Figure 11). The summer rains that caused widespread problems for winter crops provided beneficial moisture to summer crops in northern and central Europe (see Figure 7). Plentiful rainfall and relatively moderate temperatures in Hungary, Croatia, Austria, and Slovakia, allowed for favorable pollination, seed fill, and ultimately favorable yields. Rainfall was initially deficient in northern Italy during the spring. This area is the country's primary grain and rice region, including where the majority of the EU's rice is grown. Beneficial rains, however, returned to the Po River watershed later in the season allowing yields to recover.

Temperatures in much of southern Europe were at record highs in July, stressing summer crops in Spain, southern France, Italy, and the Balkan states. The extreme

temperatures of 35°C (95°F) and above in July affected corn especially hard as it coincided with pollination (see Figure 8).

In the southeastern countries of Romania and Bulgaria, the July heat was especially intense and accompanied by severe dryness. High temperatures returned again in August, quickening grainfill and capping yields further. The southeast region of Romania and the southern areas of Bulgaria were particularly targeted by the adverse conditions (see Figure 12). Romania and Bulgaria's crop mix includes a very high proportion of corn and sunflower. Corn harvest continues in September and October in the EU, largely depending on weather conditions and grain moisture content.

Mediterranean Storms and Greece Cotton

In early September, a tropical-like storm remained locked in place over the eastern Mediterranean Sea, inundating central Greece with historic amounts of rainfall over the course of four days. This area of Greece includes Thessaly, the country's primary cotton-growing region. The storm flooded thousands of hectares of cotton, resulting in a significant amount of un-harvestable area and lowered yields. In addition, in much of the remaining cotton area of central Greece, opened bolls were discolored from the heavy to excessive rain, dropping quality levels. Please see World Agricultural Production (WAP) article (WAP 9-23, September 2023, pages 21-23) on Greece cotton. Remarkably, a nearly identical weather pattern returned in late September. It brought more heavy rain to the same region of Greece, adding to the complications, production losses, and harvest delays of the remaining cotton crop, as well as other summer crops.

Summer Crop Travel

During July 2023 analysts from USDA's Foreign Agricultural Service (FAS), and FAS Europe conducted crop assessment travel in Hungary, Romania, and Bulgaria. This gave FAS an opportunity to interact with EU producers firsthand and hear about their pressing concerns. Farmers complained frequently about the rising input and land prices that they face, all while receiving low prices for their crops. In particular, the extremely high price of fertilizer last year led to reductions in usage by some farmers (but not by others with strong management practices and accessible financial resources). There are concerns of potential upcoming EU policy changes, such as a requirement for more land being left unplanted and mandatory cover crops. Especially concerning are bans on chemicals in new EU policies – particularly further bans of neonicotinoids for sunflower and corn; Current EU policy bans neonicotinoids for rapeseed.

Farmers also spoke frequently about climate change and the limits it can put on future crop yields due to increased temperatures and re-occurring droughts. Corn yields are under increasing stress by these prolonged heat and dryness trends. Farmers are searching for viable alternative crops which require less water and are more heat tolerant, but they haven't found any real answers. Standard responses were that sorghum doesn't have a market, non-GM soybeans don't yield enough, and drought-tolerant sunflower can't be planted more than once every four years or it will fail due to its high susceptibility to pathogens. Farmers, of course, are adaptable and will continue

to make difficult but necessary changes as new challenges, both regulatory and climatically, arise.

For country-specific area, yield, and production estimates within the European Union (EU), please go to PSD Online at https://apps.fas.usda.gov/PSDOnline/app/index.html#/app/home , and select "Downloadable Data Sets." Select the zipped file for "EU Countries Area & Production."

Rainy Conditions in Much of Europe During Early Spring

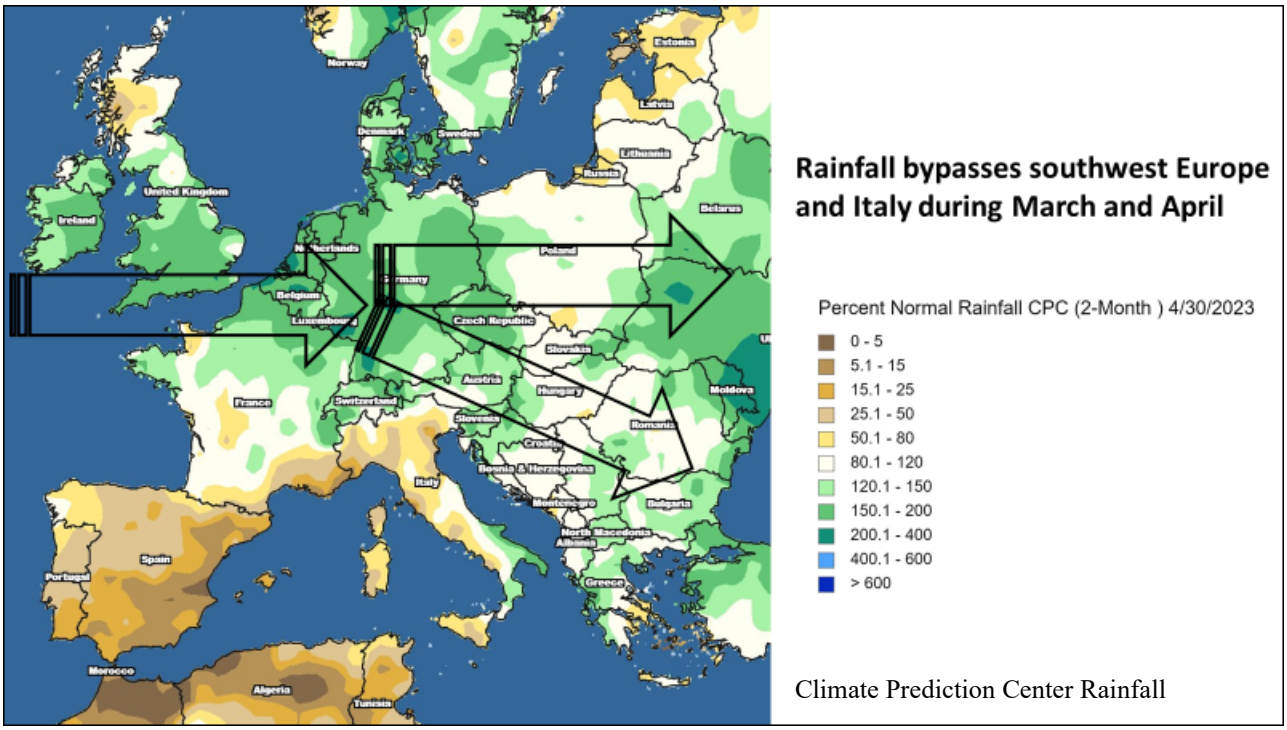

Figure 1. Blocking high pressure forced rain and cooler temperatures around the dome of hot dry air centered on Spain and Northwest Africa. Spain continued its multi-year drought during spring. Northern Italy, much of France, and Portugal remain in drought while cool, wet conditions covered the bulk of Europe during early spring.

Percent Seasonal Greenness for May 2023

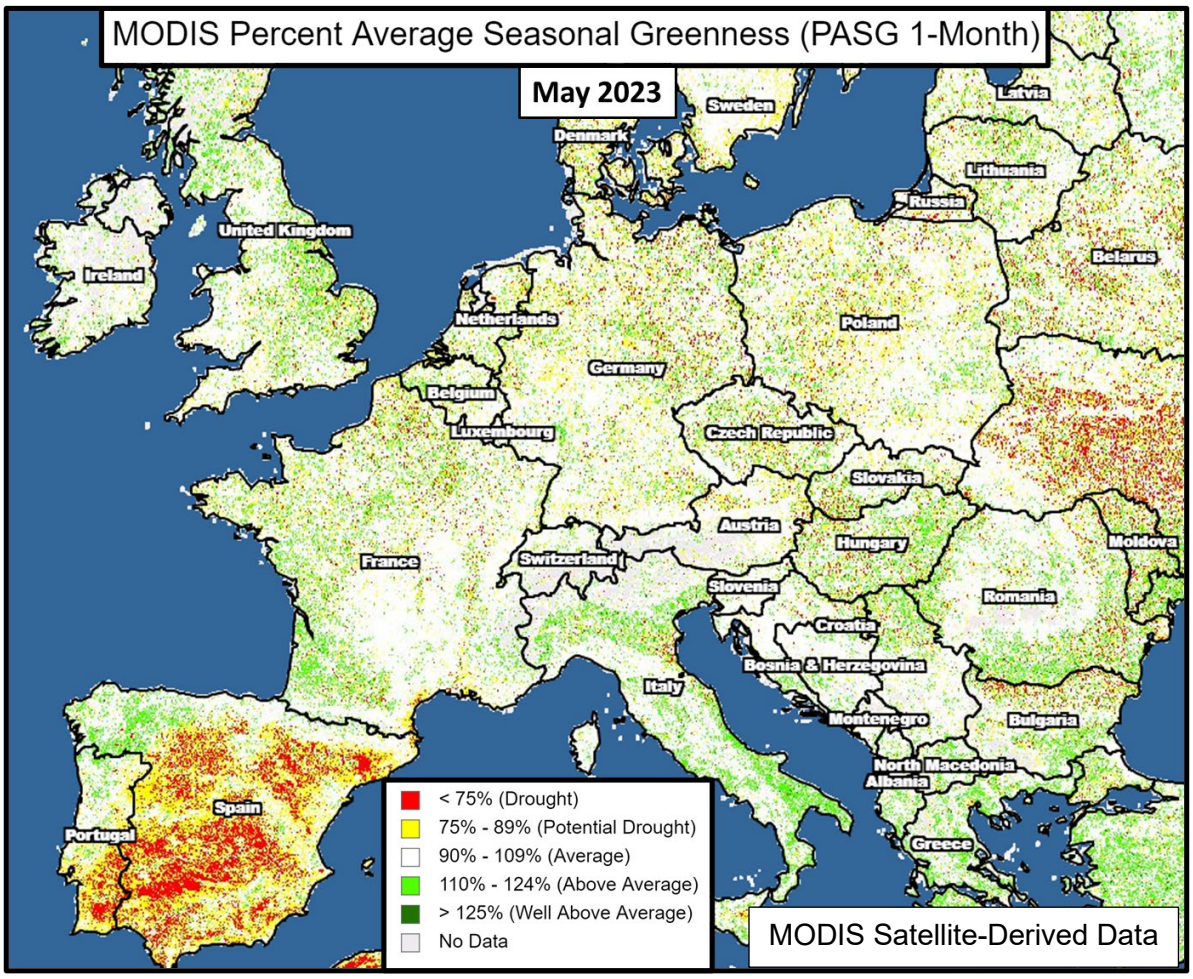

Figure 2. Satellite-Derived Percent Average Seasonal Greenness for the month of May shows the very poor conditions over Spain as drought and heat had greatly reduced crop potential. During May 2023, the rest of Europe's croplands appeared to be in average or above average conditions.

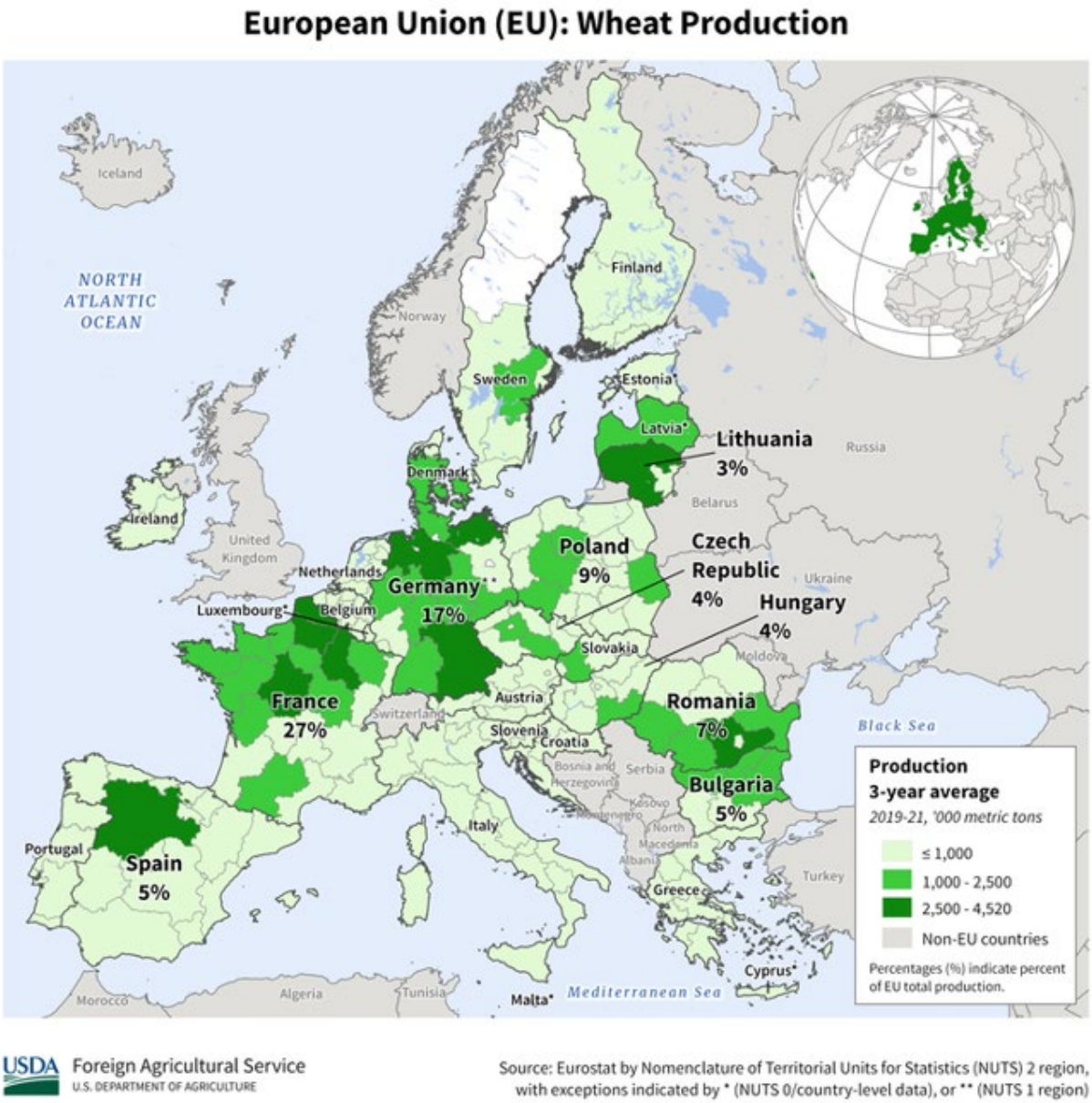

Figure 3. European Union wheat production map

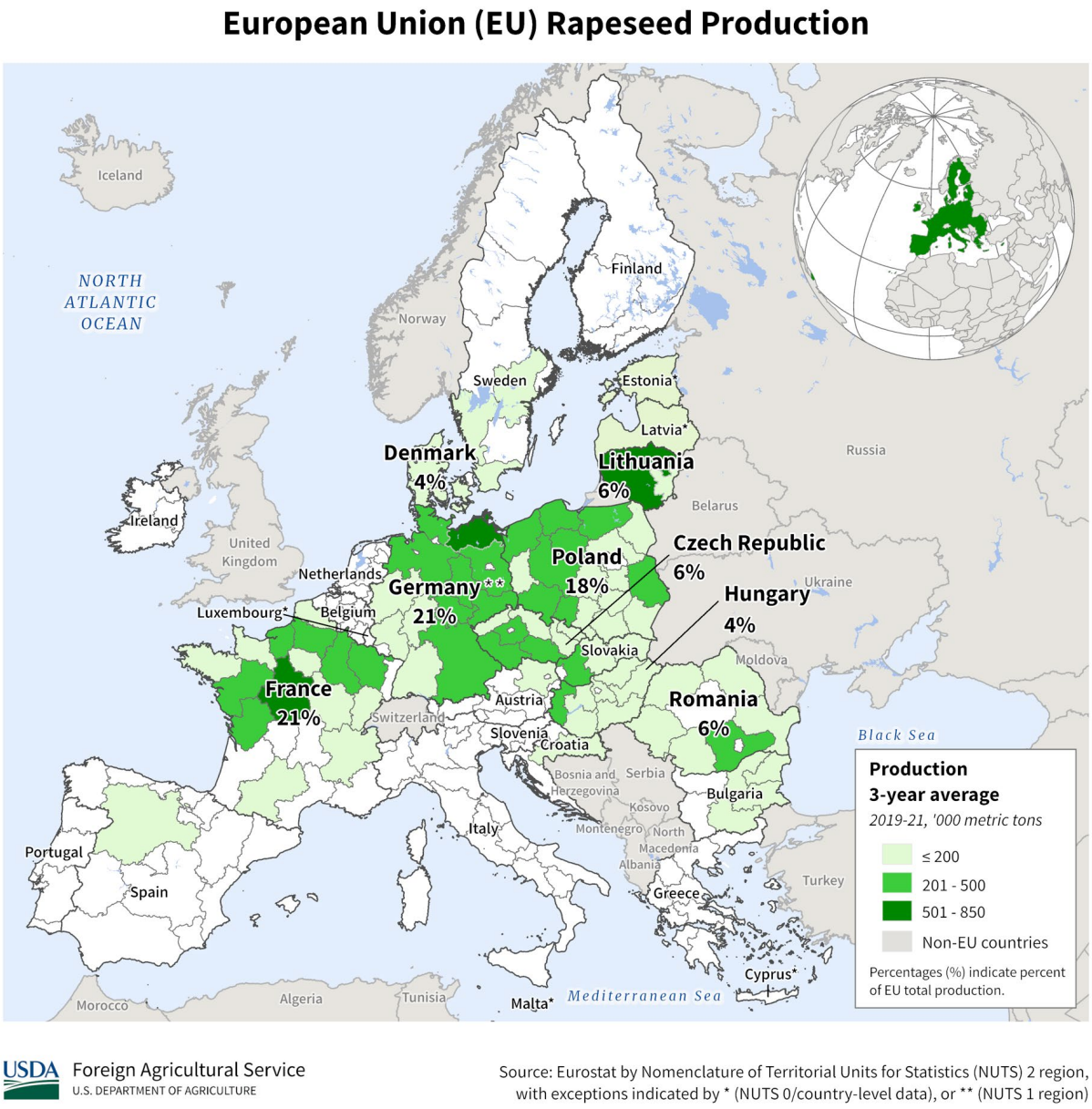

Figure 4. European Union rapeseed production map

2023 Precipitation during June; Drought intensity / Wet Conditions from May to June

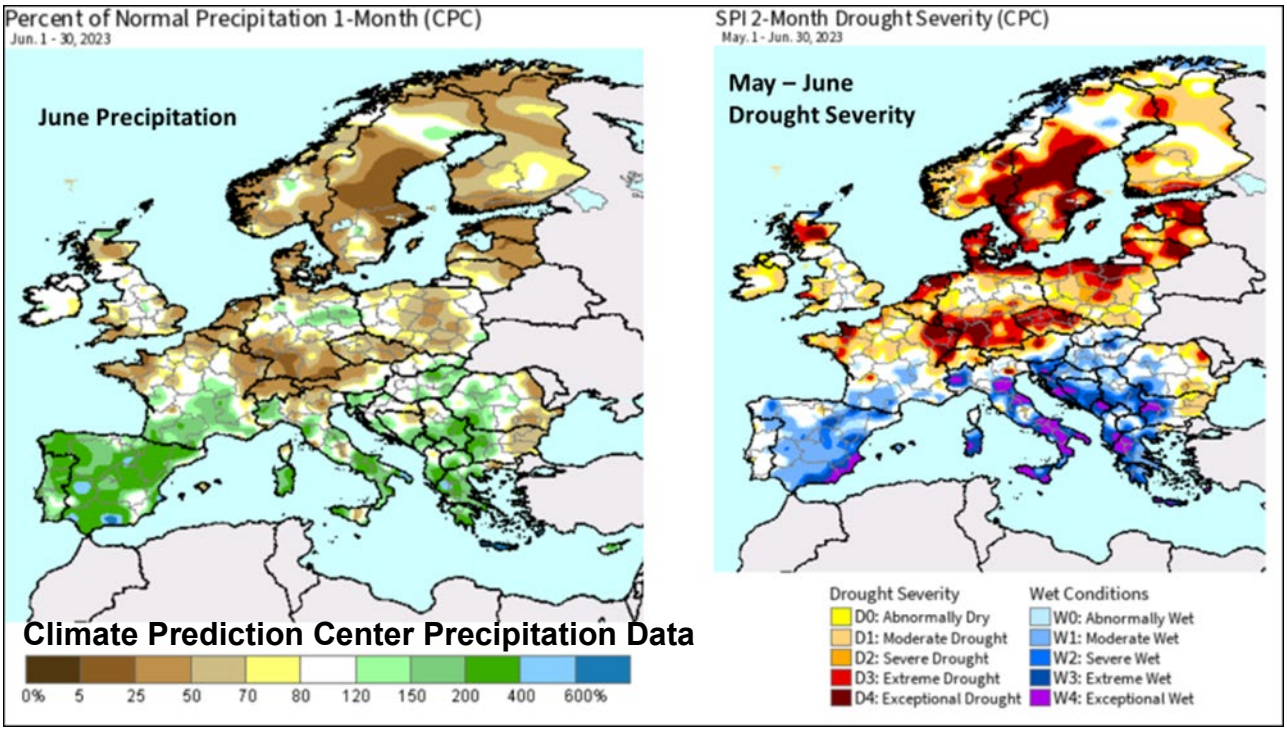

Figure 5. Dryness in May and June 2023 over northern Europe coincided with reproduction and filling of winter wheat and rapeseed. The crops in the north were starved for moisture during this water-critical period. Conversely, areas to the south, including Spain, Italy, and the western Balkan states, received welcomed rain.

Satellite-Derived Vegetation Vigor in Northern Wheat and Rapeseed Areas

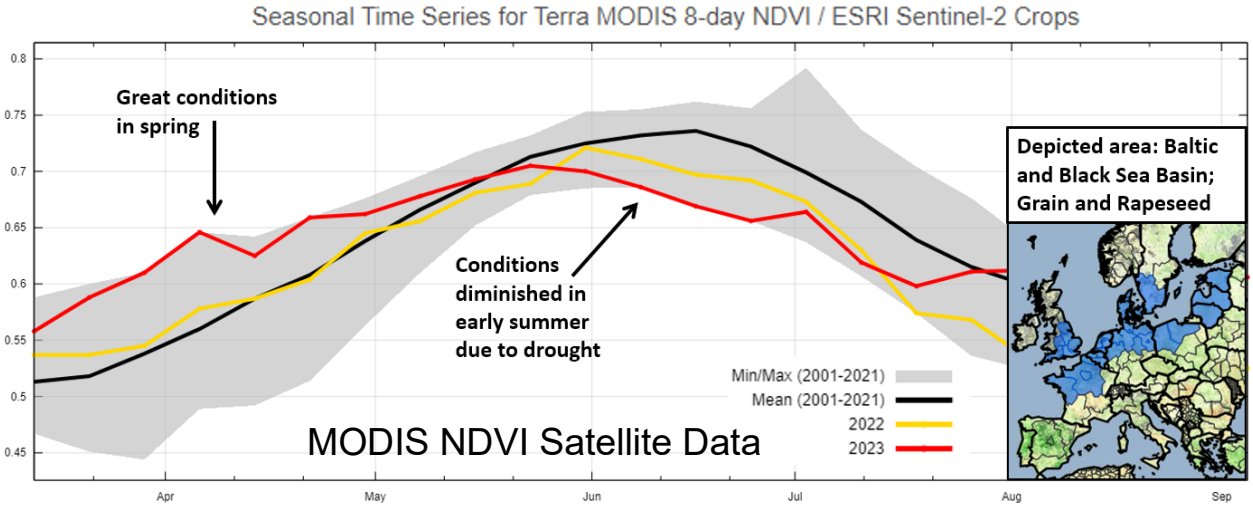

Figure 6. Satellite-derived Normalized Difference Vegetation Index (NDVI) depicts the decline in wheat and rapeseed areas after drought began in late spring/early summer 2023.

August 2023 Rainfall

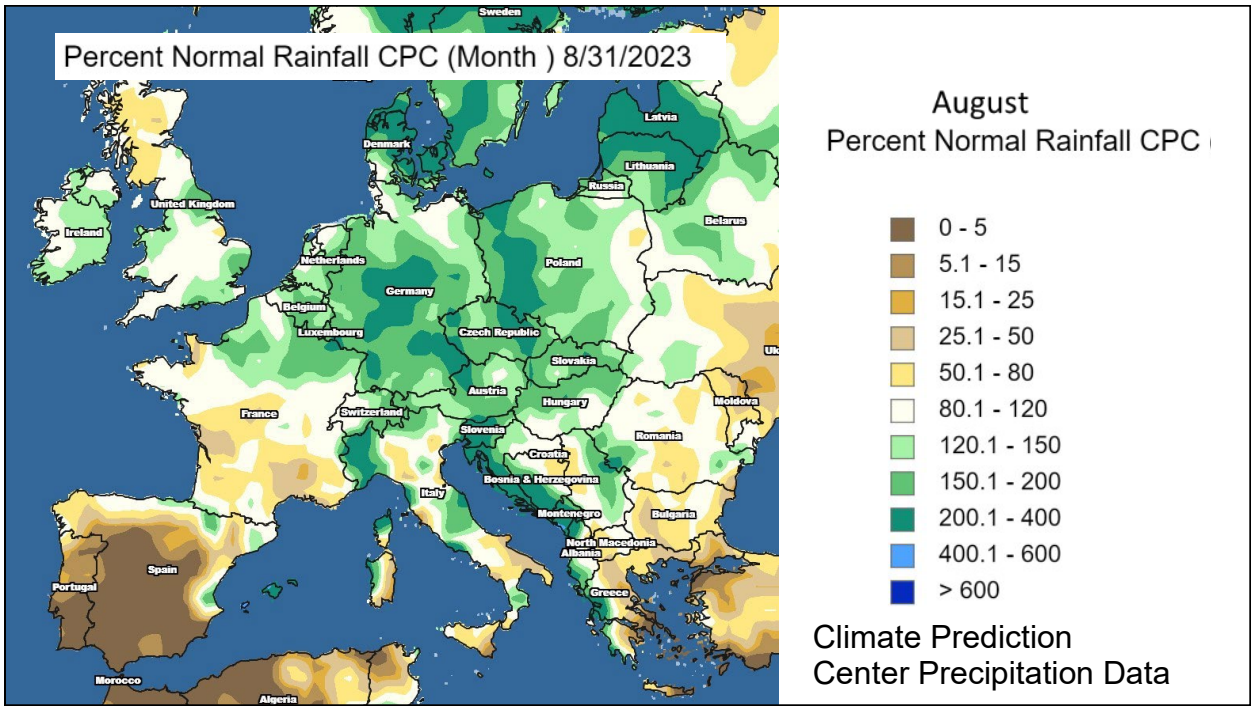

Figure 7. During August, heavy rains occurred in northern and central Europe. These rains delayed and interfered with the winter wheat harvest but provided good moisture for summer crops. Dryness dominated southwest Europe and southeast Europe.

Extreme Heat in Southern Europe During July 2023

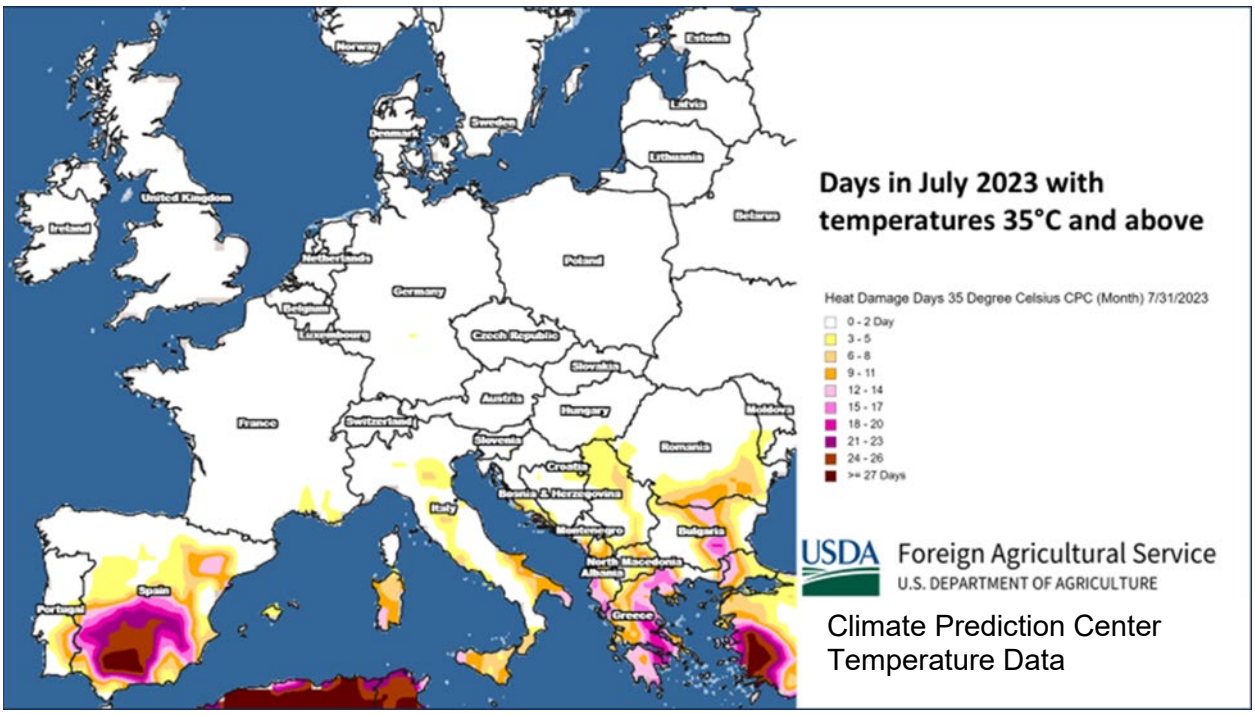

Figure 8. Temperatures in July 2023, a period when many EU summer crops are in reproduction, were excessive in southern Europe. Temperatures of 35°C or greater can cause yield damage, particularly during silking and tasseling of corn.

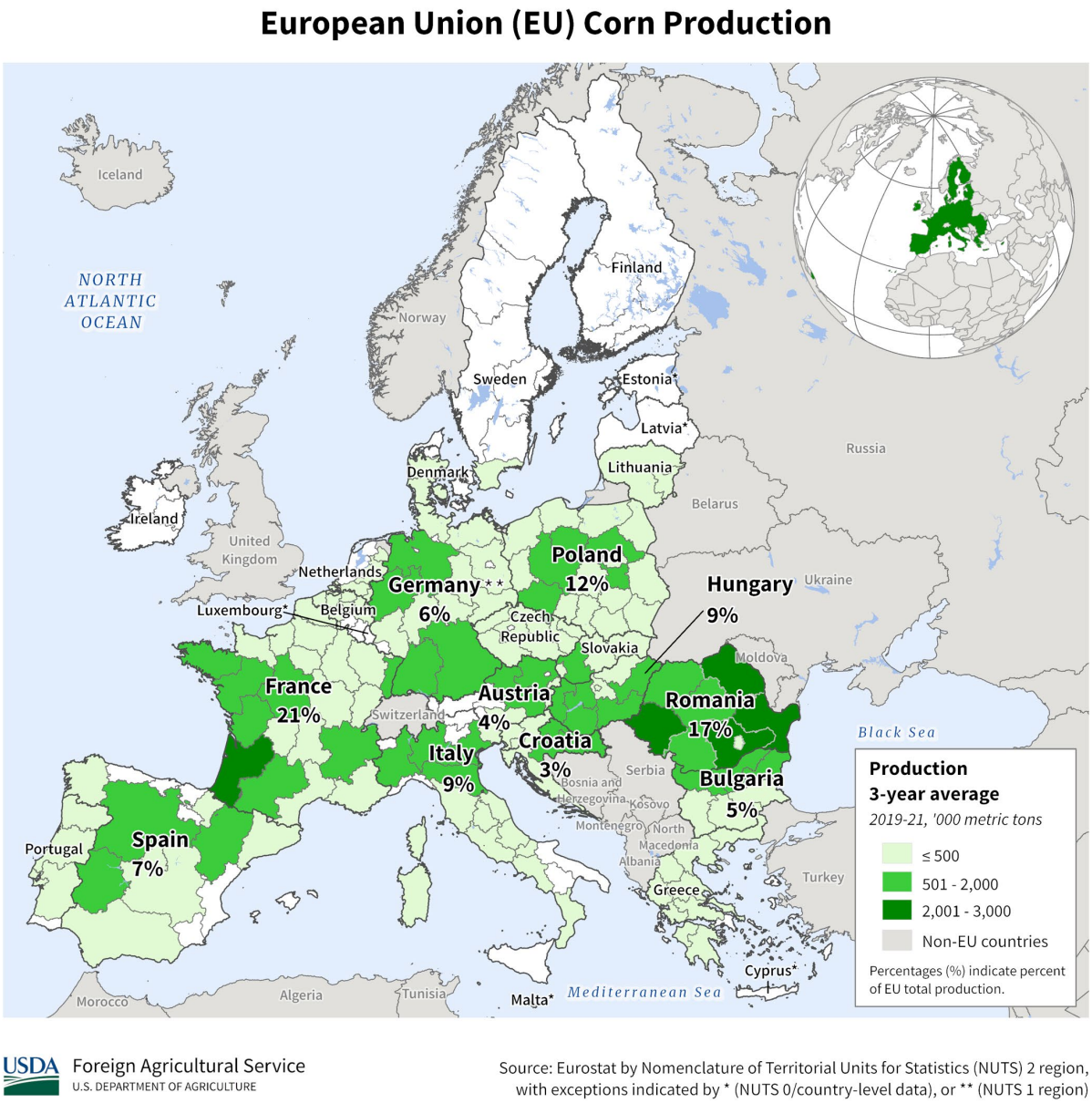

Figure 9. European Union corn production map

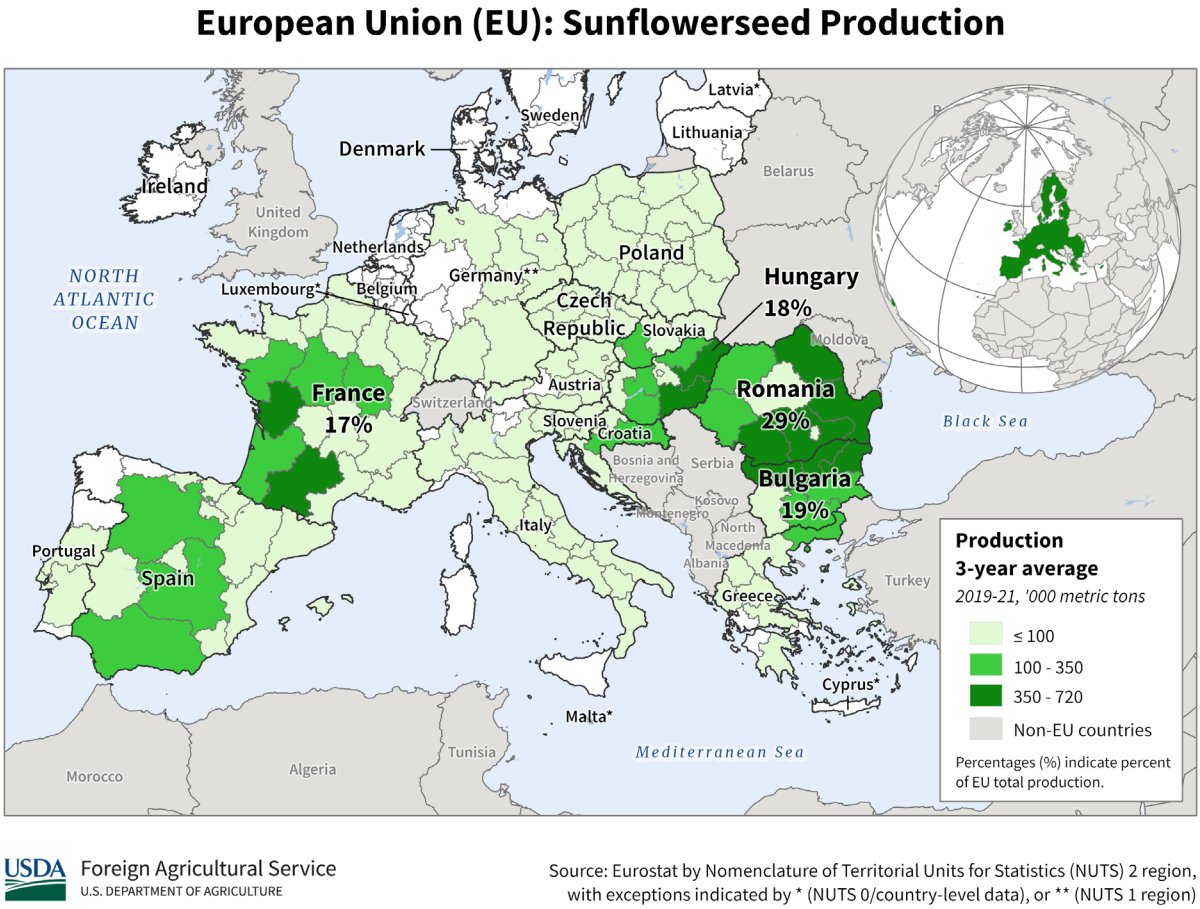

Figure 10. European Union sunflowerseed production map

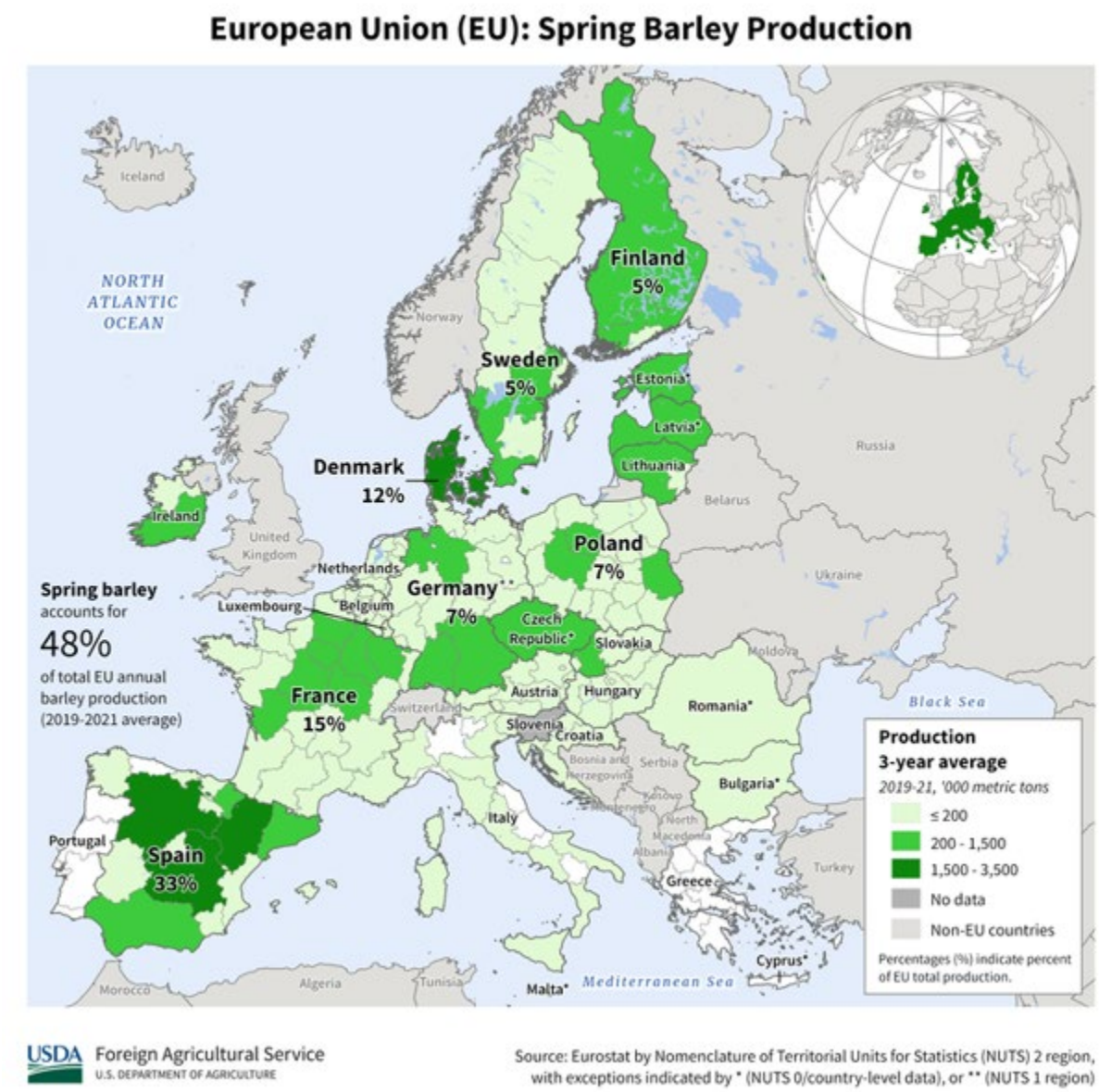

Figure 11. European Union spring barley production map

Drought and Heat Damage on Corn; Southeast Romania, July 2023

Drought and Heat Damaged Corn Showing Pest Damage (July 20, 2023)

Pictures courtesy FAS Washington during July crop travel; Slobozia, Southeast Romania

Figure 12. Drought and heat damage on corn; Southeast Romania, July 2023

Author contact information:

Bryan Purcell
Bryan.Purcell@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)
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