

Foreign Agricultural Service

Global Market Analysis

International Production Assessment Division

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Commodity Intelligence Report

Turkey MY 2021/2022 Cotton Area Rebounds but Yield Declines

USDA forecasts Turkey cotton production for Marketing Year (MY) 2021/2022 at 3.4 million 480-pound bales (mil-480 lb. bales), up 17 percent from last year. Area is forecast at 450,000 hectares (ha), up 29 percent from last year. However, yield is forecast at 1,645 kilograms per hectare (kg/ha), down 9 percent from last year's near-record yield of 1,804 kg/ha.

General Overview

Cotton production is a critical part of the Turkish economy. Turkey is one of the world's leading cotton-producing countries, with 2.5 percent of the total in 2020 (fig.1). Currently, it is the biggest producer in the Middle East, and it is the seventh-largest producer in the world after China, India, the United States, Brazil, Pakistan, and Uzbekistan with an estimated 2.9 mil-480 lb. bales of production for MY 2020/2021 (see Figure 1). Turkish cotton is grown in three major areas: the Mediterranean region, the Aegean region, and Southeast Anatolia, also known as the GAP region (see Figure 2). The latter two regions contribute about 80 percent of the total Turkish cotton production (see Figure 3). The Çukurova region, located near Adana on the south coast, and the Antalya region are the biggest cotton producing regions within the larger Mediterranean agricultural area. Cotton is planted from mid-March through mid-May and is harvested between mid-August and November.

The Importance of the GAP Irrigation Project

The Southeastern Anatolia Project (*Güneydoğu Anadolu Projesi, GAP*) is a multi-sector development project that aims to promote regional sustainability and to improve the water and land resources management in Southeast Anatolia. The areal extent of the GAP project includes nine provinces located in the Euphrates-Tigris basin and the upper Mesopotamia plains (see Figure 4). The project was launched in the early 1970s and envisaged the construction of 22 dams, 19 power plants, and numerous irrigation infrastructures. As a result, the GAP project has brought to the region a predictable supply of irrigation water. This has led to improved yields and prompted an increase in cotton planting in the GAP area, as reported in a GAIN cotton report from USDA's office in Ankara. A large portion of cotton in the GAP region is grown in the Sanliurfa province and the Harran Plain, which is one of Turkey's most important agricultural areas. Water from the Atatürk Dam, located on the Euphrates River and developed as a part of the GAP project, began irrigating the precipitation-limited, but fertile upper Mesopotamia plains,

including the Sanliurfa-Harran and Mardin-Ceylanpınar Plains, and turned the area into Turkey's leading cotton producing region (see Figure 3 and Figure 5). The expansion and improvement of the irrigation infrastructure phase of the project has slowed down during the last decade.

According to [FAO AQUASTAT](#), cotton is the highest user of irrigation water in Turkey during the summer months, followed by sunflower and corn. Aside from Southeast Anatolia, part of the cotton grown in the remaining part of Turkey relies on seasonal precipitation and, thus, is vulnerable to weather-related abnormalities.

Overview of MY 2020/2021 Season

Turkey's MY 2020/2021 harvested area was the fifth lowest since MY 1990/1991 (see Figure 6). [Prior to and including the early stages of the GAP project were excluded to avoid the bias associated with the project's related area expansion]. A March 2021 GAIN cotton report from USDA's office in Ankara outlined several reasons that led to the 39 percent reduction in cotton area during MY 2020/2021, relative to MY 2019/2020 when the harvested area was 570,000 ha. The greatest reduction was noted in the GAP region. One of the major reasons for the area contraction was the government-imposed crop rotation rule. Generally, farmers are required to change the crop they plant every third year in order to get subsidies. Additional concerns were related to increases in production costs for pesticides and fertilizers, insufficient government subsidies, and unattractive cotton prices, all of which motivated farmers to switch to alternative and more profitable crops.

For this year (MY 2021/2022), harvested area is projected to rebound back to 450,000 ha and increase by 29 percent. Despite this significant increase, however, MY 2021/2022 harvested area is still below the 5-year average by 3 percent. Farmers who planted alternative crops in MY2020/2021 as a result of the rotation rule, are now allowed to cultivate cotton again. Cotton growers in Turkey rely on subsidies to improve their profitability and offset the increasing costs for fertilizers, seeds, fuel, etc. The government subsidy for cotton was kept unchanged for the previous three years. In October 2020, the Government announced a 38 percent increase in subsidies, which served as an additional motivation for farmers to switch back to cotton, according to USDA's office in Ankara.

Water needs for cotton vary throughout the growing season. They are the highest during flowering when leaf area is at a maximum. Generally, in Turkey, cotton flowers in late-June and reaches maturity between mid- and late-August. The two-month Percent Average Seasonal Greenness index from this key growing period for MY2020/2021 shows above average vegetation vigor (see Figure 7), which is consistent with the precipitation and irrigation water availability during the 2020/2021 season. These favorable weather conditions and sufficient water supplies resulted in high yields leading to the second highest yield on record since the 2000/2001 marketing year (see Figure 8).

The MY 2021/2022 yield is, however, projected at 1,645 kg/ha, down 9 percent from last year's near-record yield. The main reasons for the yield decline are the short-term dryness

certain parts of Turkey are currently experiencing and the announced potential limited availability of irrigation water this year relative to MY 2020/2021. Harvest of the MY 2021/2022 cotton is expected to begin in late August.

World Cotton Producers, Percent of World Production for MY2020/21

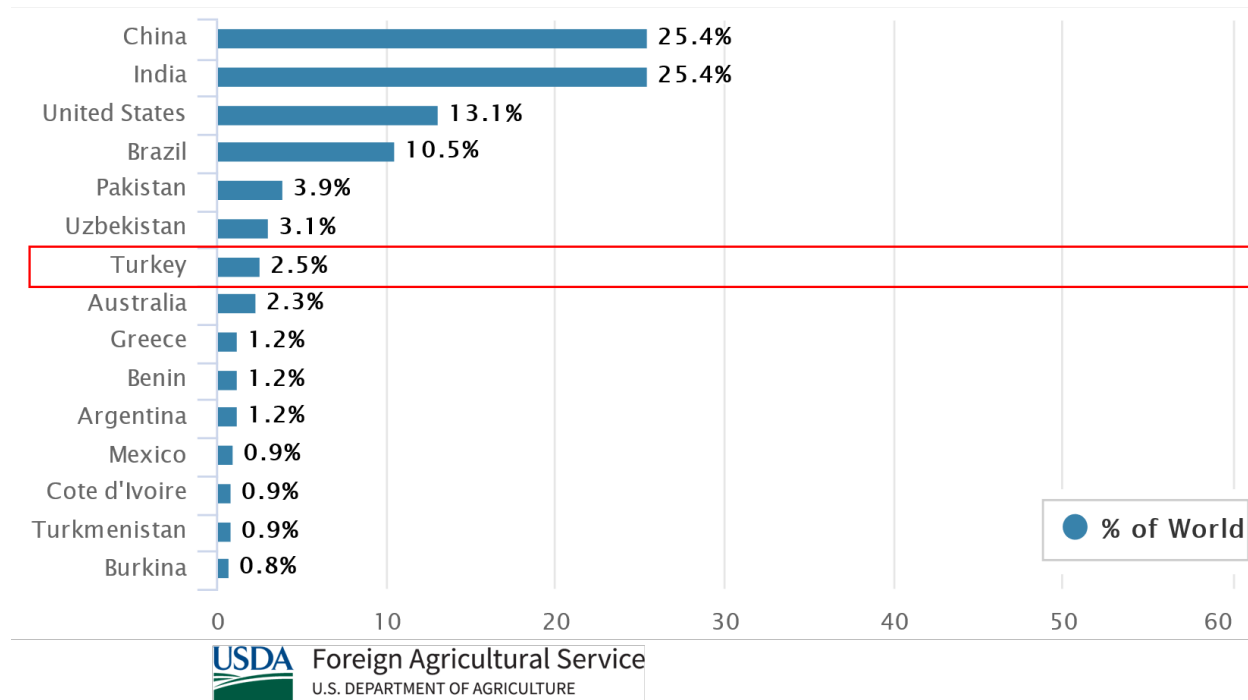


Figure 1. Cotton, percent of world production for MY2020/2021: Turkey is the world’s seventh-largest producer. Source: USDA PSD Online.

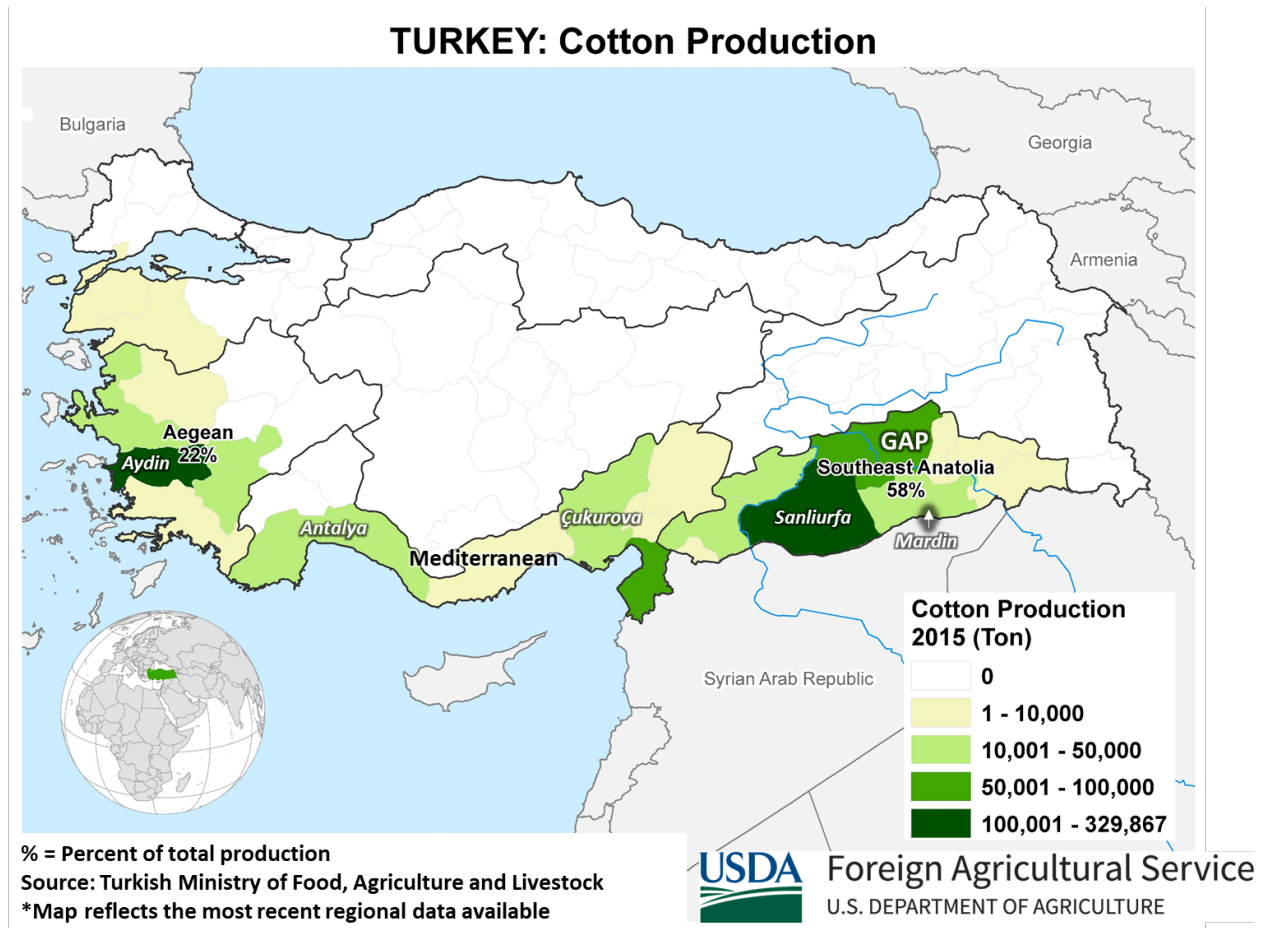


Figure 2. Turkey cotton production map and location of the main cotton producing regions. Source: Turkey Ministry of Food, Agriculture and Livestock.

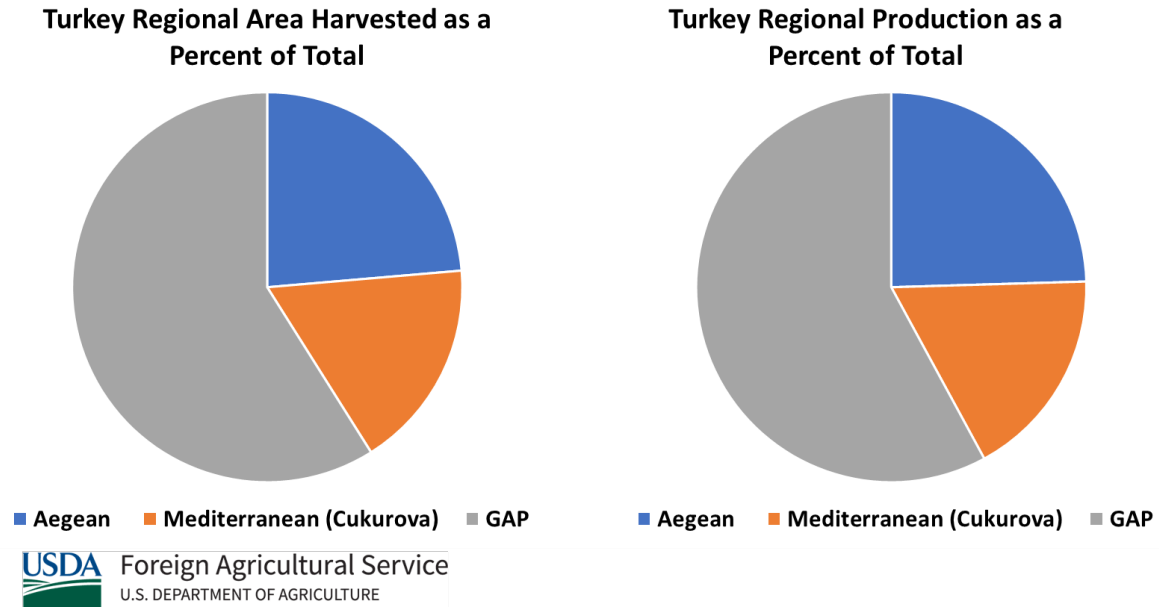


Figure 3. The 5-year (2016-2020) percent average area harvested and production for the three major cotton producing regions in Turkey. Source: USDA's Agricultural Affairs Office in Turkey, [Annual Cotton GAIN reports 2016-2020](#).

Turkey Areal Extent of the GAP Project

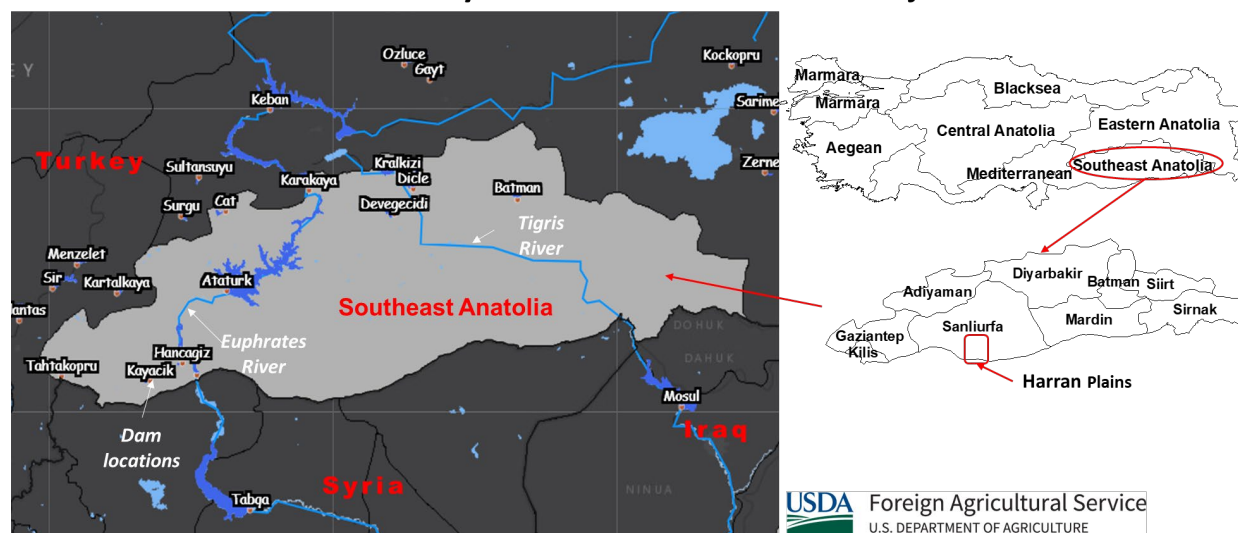


Figure 4. Areal extent of the GAP project in Turkey, which aims to improve the water and land resources in Southeast Anatolia. The project includes nine provinces located in the Euphrates-Tigris basin and the upper Mesopotamia plains.

Turkey Normalized Difference Vegetation Index (NDVI)

8-day MODIS NDVI 2002/08/06 – 2002/08/13

8-day MODIS NDVI 2020/08/05 – 2020/08/12

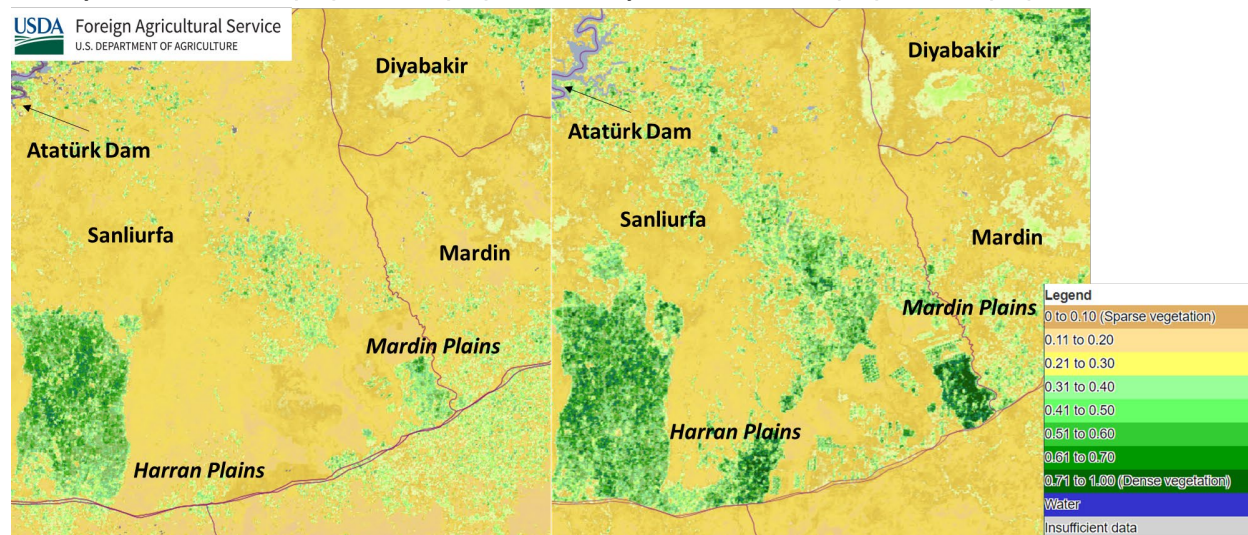


Figure 5. Normalized Difference Vegetation Index (NDVI) data from early-August 2002 (left) and early-August 2020 (right) illustrates the impact of the GAP project. The increase of green colored area indicates expansion of agricultural land as well as shows improved vegetation status as a result of the available irrigation water. Source: NASA USDA Global Agricultural Monitoring System.

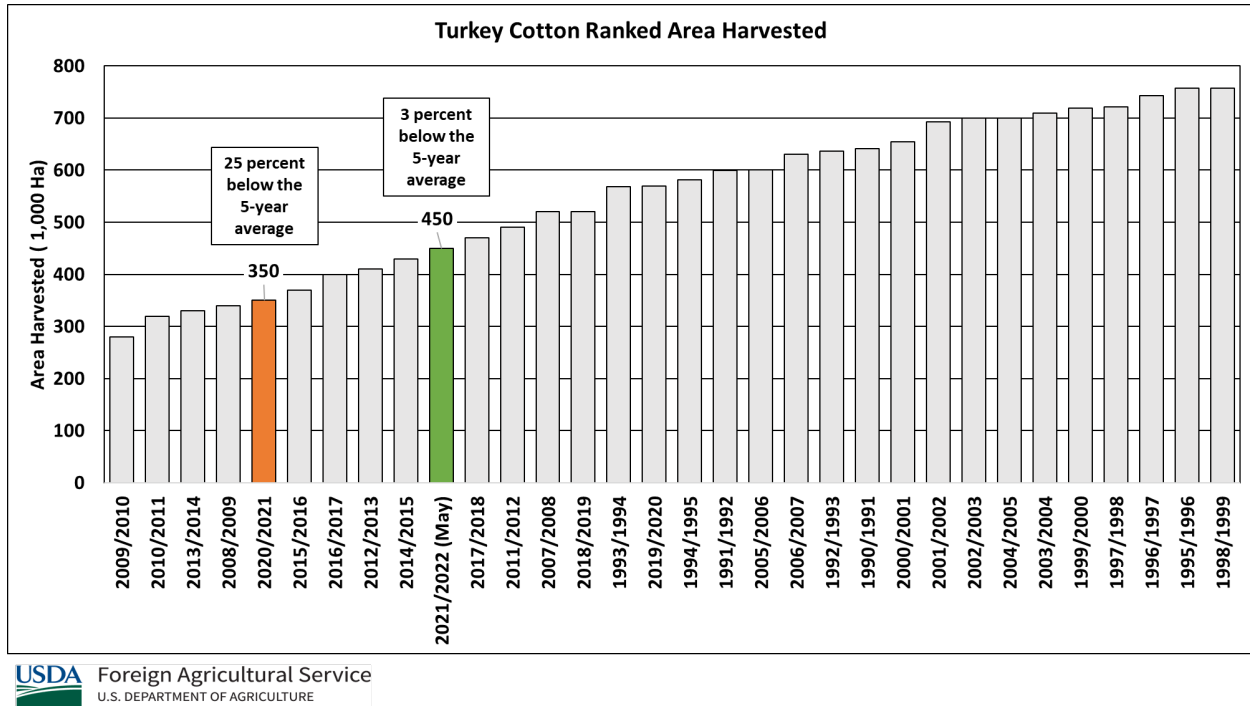


Figure 6. Turkey cotton ranked time series of area harvested since MY 1990/1991. Source: USDA PSD Online.

Turkey 2-month MODIS Percent Average Seasonal Greenness ending August 27, 2020

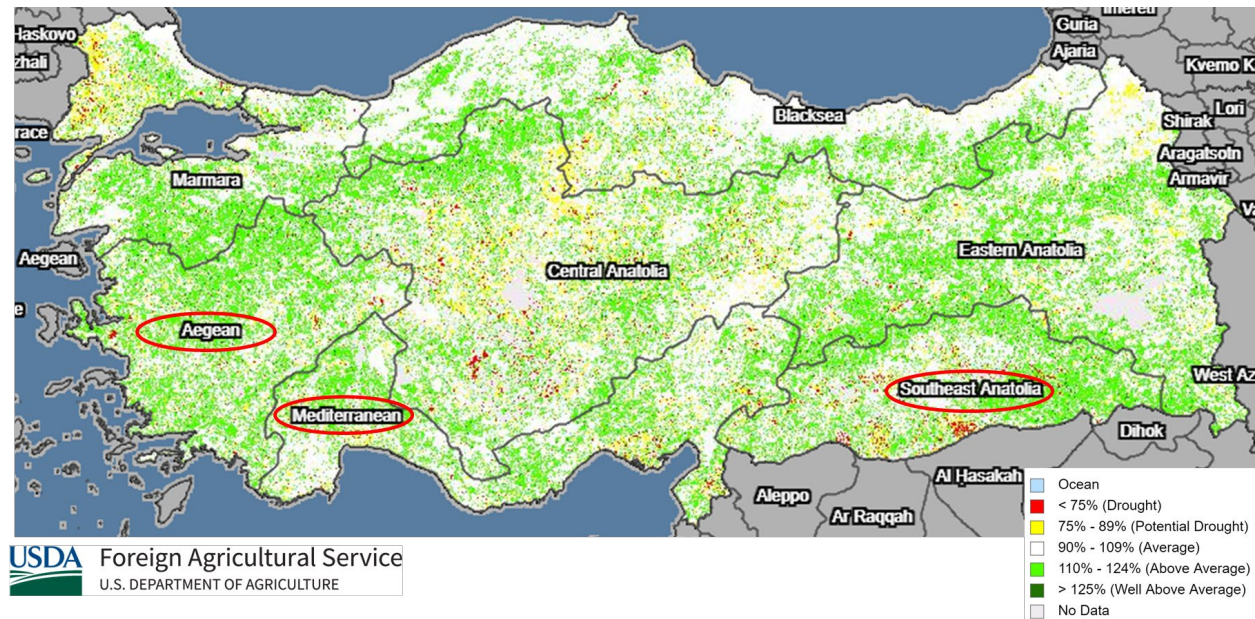


Figure 7. Turkey 2-month Percent Average Season Greenness (PASG) for the 2020/2021 growing season. Source: NASA USDA Global Agricultural Monitoring System.

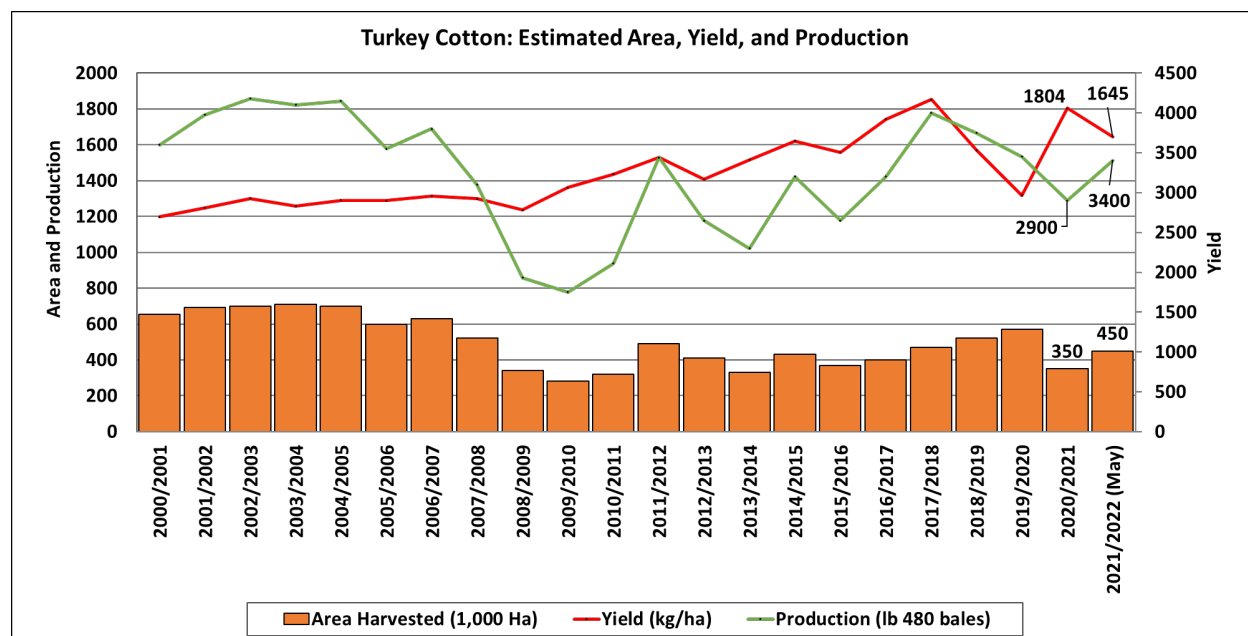


Figure 8. Time series of Turkey cotton area harvested, yield and production. Source: USDA PSD Online.

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