

Commodity Intelligence Report

June 28, 2019

Syria Wheat: Production Rebounds from Last Year's Drought Affected Crop

Syria wheat production for 2019/20 is estimated at 4.8 million metric tons (mmt), up 2.8 mmt or 140 percent from last year's crop of 2.0 mmt. Harvested area is estimated at 1.6 million hectares, up 45 percent from last year. Yield is estimated at a record 3.00 metric tons per hectare, up 65 percent from last year.

Yields are significantly higher than the last 5 years which suffered from conflict and drought (Fig. 1). This year's record yield helped to push production up over 140 percent from last year. While the long-term yield trend is positive, over the last 10 years, a cycle of droughts has limited yields and intensified the already aggravated farm economy suffering from regional conflict.

Rainfall has been plentiful all season since the start of the planting window in late October (Fig. 2). Syria's top northern provinces (Aleppo, Ar Raqqa, and Al Hasakah) make up nearly 70 percent of the total winter grains production. This year, these high-producing northern provinces benefited greatly by receiving at least 150 percent more precipitation than normal. Above normal precipitation conditions began at planting and have extended until the present time.

Precipitation has exceeded 350 mm of rainfall for the northern winter grains region. About 40 to 50 percent of this area is dependent on rain (Fig. 3). Although this area is rain-fed, it is also the area with the most irrigated wheat. The rainfall distribution has been uniform the entire season with moderate amounts of rainfall occurring in short intervals resulting in ideal conditions for the production of a near-record wheat crop.

In addition to the rainfall being above average, MODIS satellite vegetation index (normalized difference vegetation index, NDVI), which is a measure of plant biomass, has also been above average all season (Fig. 4). MODIS NDVI data has been collected and cataloged for the last 17 years and the difference between this year's biomass and the average is shown in the vegetation anomaly map. This year's NDVI is at record levels across Syria's winter grains growing areas as shown in the chart of NDVI. Peak NDVI occurred in early April and the crop has subsequently been rapidly maturing, but at a slightly slower pace and behind previous year's crops where hot and drier weather accelerated maturation.

The difference between last year's drought-plagued crop and this year's well-watered crop was evident from satellite imagery and can be seen in the MODIS satellite image for the northern region of Syria (Fig. 5). While irrigation is a significant practice for the northern crop, above average rainfall provides much needed supplemental water where the crop is irrigated, as well as that required by the rain-fed crop.

High resolution imagery displayed the significant differences between three crops in early April: this year's record (2019), last year's drought (2018), and a normal to below-normal year in 2017 (Fig. 6). Favorable soil moisture conditions at planting allowed a large number of fields to be sown for the 2019/20 season and area is estimated 45 percent higher than last year. Both mild temperatures and moist soil conditions would have allowed for rapid germination and establishment.



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Plowing and planting activity was observed by high resolution satellite imagery collected November 1, 2018 across Al Hasakah province. Although field abandonment occurs every year, the conditions this year would leave the probability of any field abandonment very low. Temperatures have been cool and mild, which supports higher yield estimates.

Starting around May 16 winter grains fields were reported to be on fire. Over the next few weeks additional fires were observed (Fig. 7). Satellite imagery indicated several of these fires involved winter grains fields while others occurred over grasslands.

Harvest began in late May and will continue through July. Weather forecasts are for warm temperatures and normal precipitation conditions, all of which should help to keep the harvest campaign on schedule.

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Current area and production estimates for grains and other agricultural commodities are available on IPAD's Agricultural Production page:

[Crop Explorer https://ipad.fas.usda.gov/cropexplorer/](https://ipad.fas.usda.gov/cropexplorer/)or

Production, Supply and Distribution Database (PSD Online):

<http://apps.fas.usda.gov/psdonline/psdHome.aspx>

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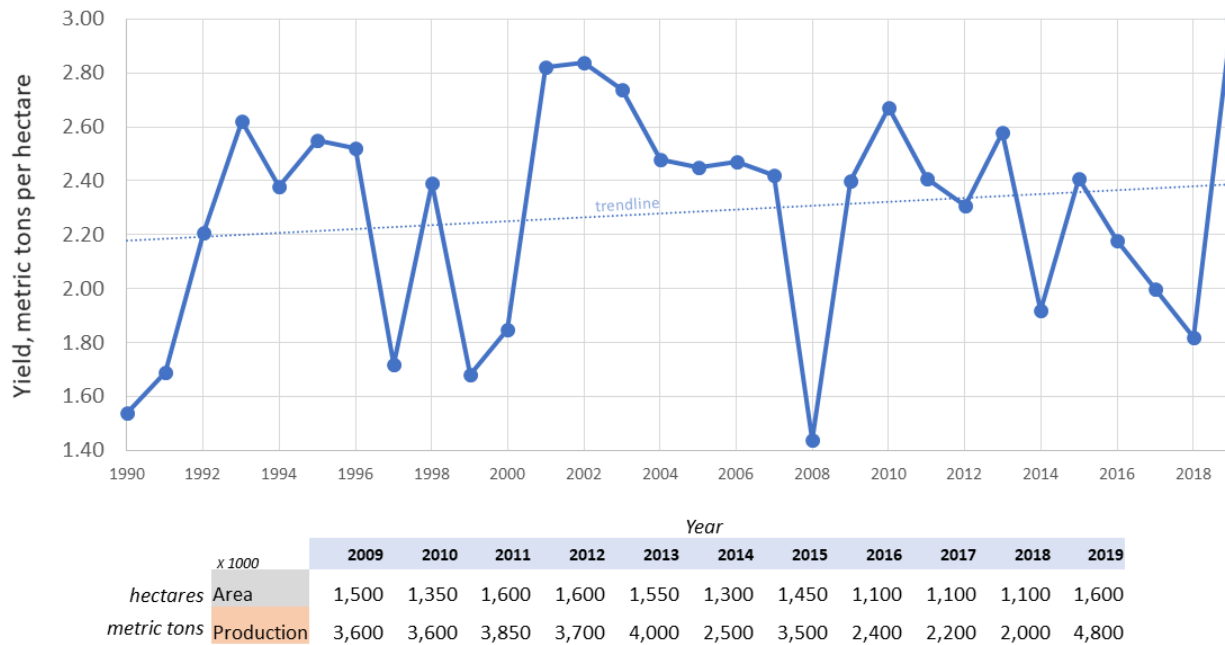
Office of Global Analysis

International Production Assessment Division Ag Box 1051, Room 4630, South Building

Washington, DC 20250-1051

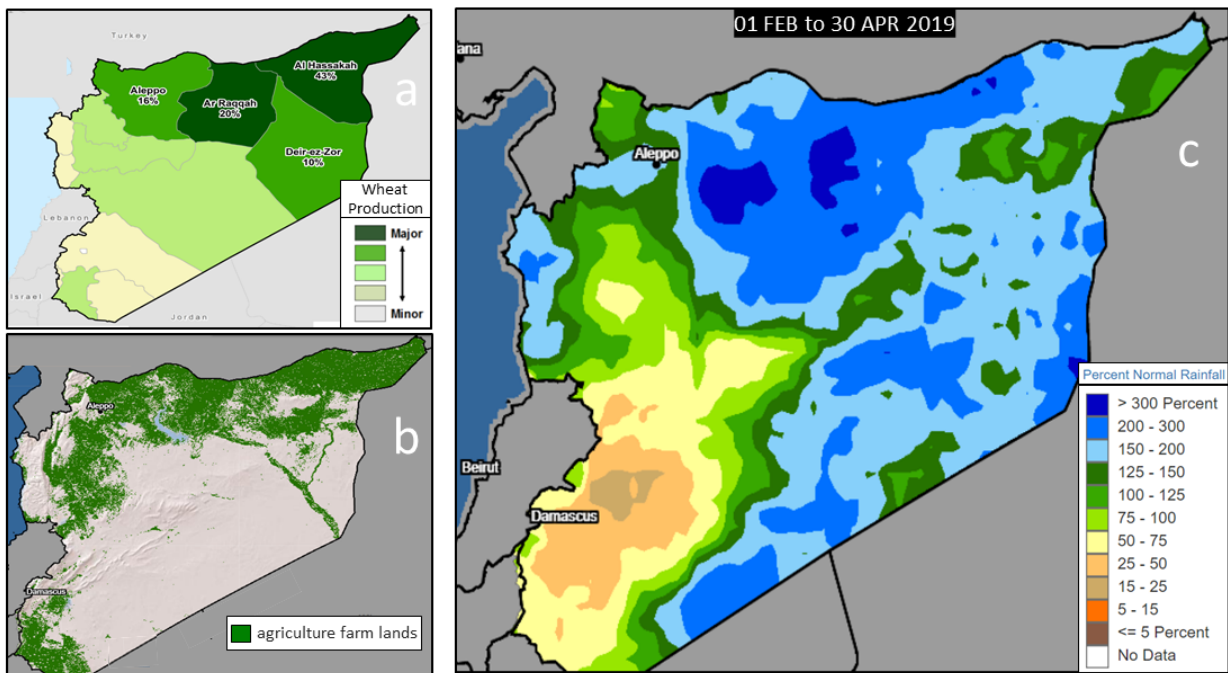
Telephone: (202) 720-1662 Fax: (202) 720-1158

Figure 1. Yield Chart and Table of Area and Production for Syria Wheat



Source: USDA PSD Online

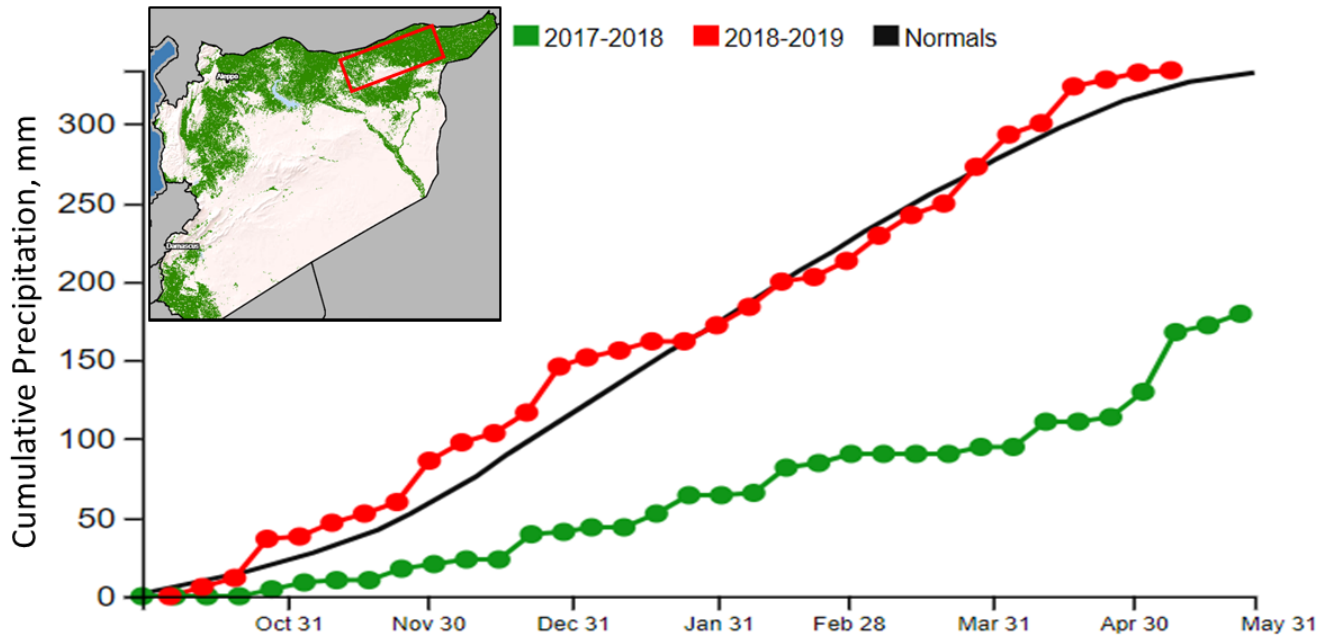
Figure 2. Maps of (a) Syria Province Wheat Production, (b) Agricultural Lands, and (c) 3-Month Percent Normal Precipitation



Sources: a) Syrian Ministry of Agriculture
b) NGA Global Land Cover Data Set

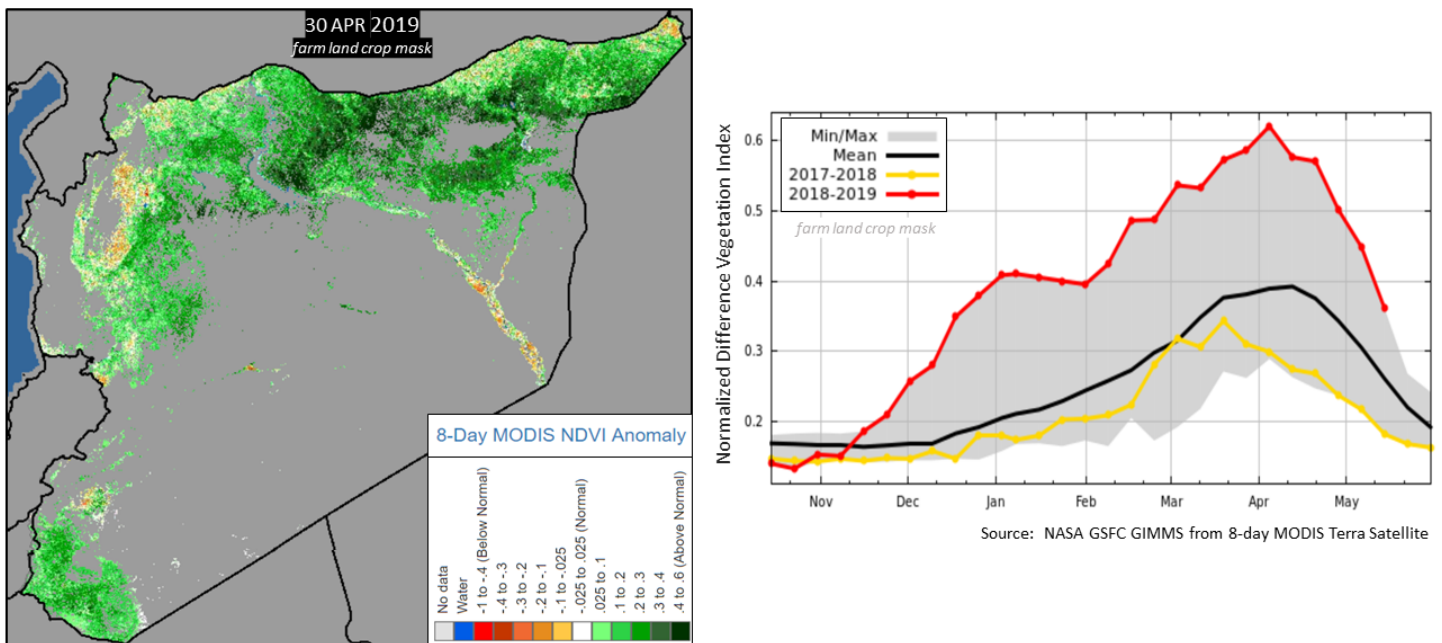
Source: c) NASA GPM Cumulative Precipitation

Figure 3. Northeastern Syria Cumulative Precipitation



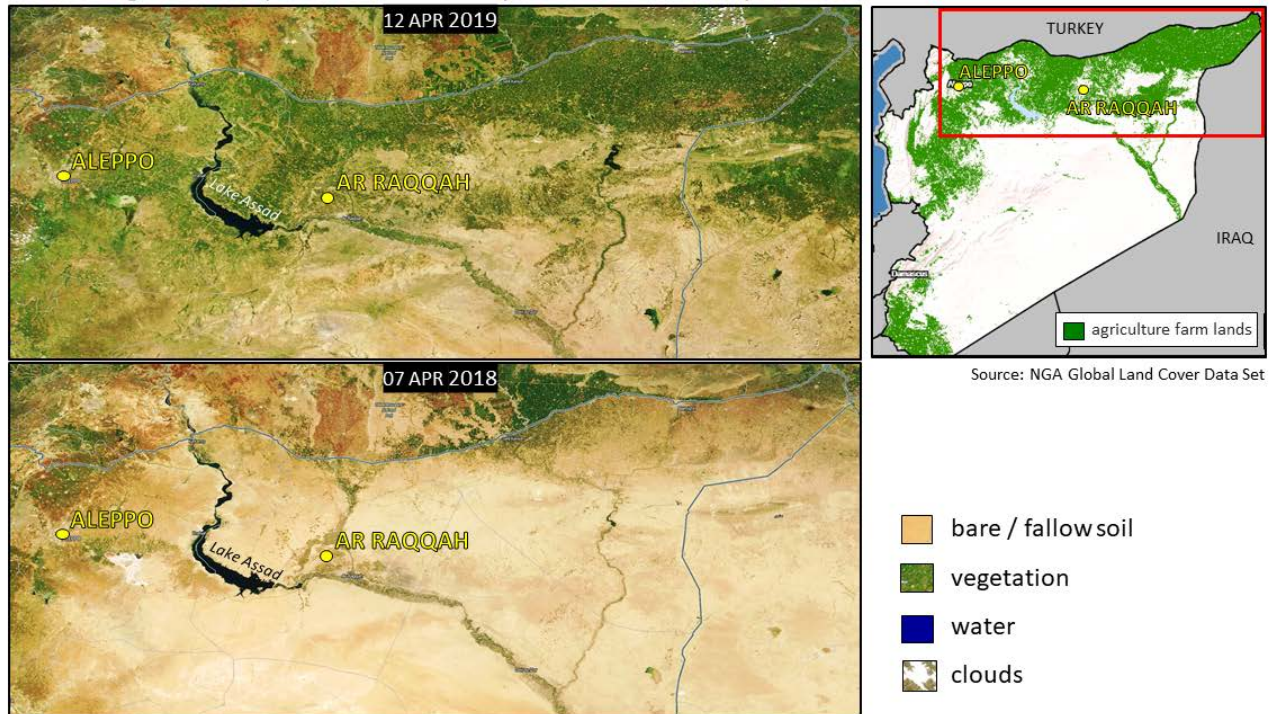
Source: US Air Force 557th Weather Wing

Figure 4. Vegetation Anomaly Map and Vegetation Index Graph for all of Syria Winter Grains



Sources: NASA GSFC GIMMS from 8-day MODIS Terra Satellite
Crop mask - NGA Global Land Cover Data Set

Figure 5. Comparison of Northern Syria Winter Grains Crop between March of 2019 and 2018



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Source: NASA EOS MODIS Terra Satellite

Figure 6. Satellite Image Comparison of Winter Grains in April of 2019, 2018 (*drought year*) and 2017 (*average year*)



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Figure 7. Satellite Imagery of Burned Winter Grains Fields and Grasslands

