

First Advance Estimate of 2017/18 Wheat Production in Nepal using the CCAFS Regional Agricultural Forecasting Toolbox (CRAFT)

18 June 2018

The first advance estimate of 2017/18 wheat production in Nepal was obtained using CRAFT, CCAFS Regional Agricultural Forecasting Toolbox (see Methods on page 2). According to CRAFT, the 2017/18 wheat production forecast is 1,718,285 MT, a 7.4 percent decrease compared to the production level of 1,856,191 MT in the 2016/17 season (see Figure 1). Furthermore, the forecasted figure is 8 percent decrease from the average production over the last five years. The forecast was made using MoALMC's latest estimate of 699,058 ha of wheat crop area which is a 5.6 percent decrease compared to 2016/17 and the forecast is based on a prediction uncertainty of 11.5 percent.

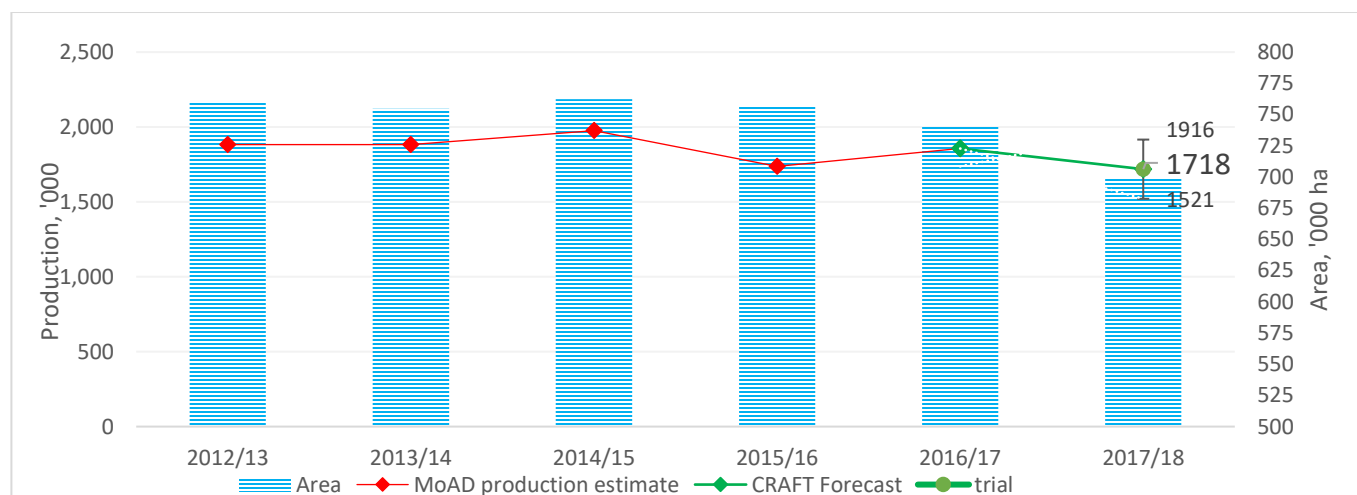


Figure 1: Wheat area and production trend in Nepal with 2017/18 forecast based on CRAFT

This decline in wheat production is mainly attributed to the significant decrease in sowing area, mainly due to the damages caused to the irrigation infrastructures by last year's floods. The monsoon of year 2017 strengthened in August and heavy rainfall caused devastating floods throughout the Terai. This led to a sharp decline in wheat sowing area, thereby affecting production. As per the Department of Hydrology and Meteorology (DHM), cumulative rainfall during this winter season (1 December 2017 to 28 February 2018) was reported to be 22.9 percent of the 30-year average causing a winter drought in the country. This water deficit is likely to have a negative impact on wheat growth and is likely to impact production this season because of inadequate soil moisture. It was assumed in the CRAFT model run that the wheat plantation date was the same as in 2016/17.

This is the final estimate for the season.



नेपाल खाद्य सुरक्षा अनुगमन प्रणाली
Nepal Khadhyo Surakshya Anugaman Pranali (NeKSAP)
Nepal Food Security Monitoring System



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Under the research theme on Climate Risk Management, the CGIAR Research Project on Climate Change, Agriculture and Food Security (CCAFS) developed a crop yield forecasting tool customized for the South Asia Region known as the CCAFS Regional Agriculture Forecasting Toolbox (CRAFT). CCAFS is a strategic partnership of CGIAR and Future Earth, led by the International Center for Tropical Agriculture (CIAT), which conducts research to identify and address the most important interactions, synergies and tradeoffs between climate change, agriculture and food security.

Method

CRAFT incorporates a crop simulation model (DSSAT), weather and seasonal forecast module (CPT) and a GIS mapping module (Map Win GIS). The tool provides the support for spatial input data, spatial crop simulations, integration of seasonal climate forecasts, spatial aggregation, probabilistic analysis of forecast uncertainty, and calibration of model predictions from historical agricultural statistics, analysis and visualization. The tool helps to provide advance information to farmers, extension agents and policy makers allowing them to manage within-season climate risks to agriculture. The model has been used in Nepal for a pilot study and is being currently used in Bangladesh, Sri Lanka and India as well.

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