

Wheat yield estimation using temporal NDVI for the district Sheikhpura, Punjab, Pakistan

Asdullah Khan Ghalib¹; Sajid Rashid Ahmad¹; Sana Khushi¹ and Zille Huma²

¹*Institute of Geology, University of the Punjab, Lahore, Pakistan*

²*Divisional public school and inter college Lahore, Punjab, Pakistan*

asdullahkhanghalib@gmail.com

Abstract

Agriculture constitutes the largest sector of Pakistan. Punjab is most agricultural province and produces wheat, cotton and other crops and plays an important role in national economy. Sustainability of the wheat production leads a populous region toward self sufficient. To monitor and manage our natural resources using efficient means is ultimate goal and remote sensing techniques provide better observation over the larger areas. Leaf area index, above-ground biomass and vegetation cover are generally assessed using normalized differenced vegetation index.

This paper also designed on NDVI basses and provides the utility of NDVI for the yield estimation in the Sheikhpura district. For this purpose six images from the sensors including Landsat, TM (2009-2011), ETM+ (2012) and Landsat-8 OLI (2013-2014) are selected. All selected images were of dated mid of March keeping in view the health crop of wheat in this period. NDVI from all the six images are derived and healthy crop area are extracted. Area of the healthy crop is calculated and compared with the wheat yield declared by bureau of statistics Punjab. Linear regression approach for estimation of yield of wheat crop is used

Predicted value of wheat production in district Sheikhpura for the year 2014 is estimated by using NDVI techniques. It is found that there was change in the area calculated by NDVI values showing healthy crop in temporal images from secondary data. This could be an important technique in crop area estimation and yield prediction at larger spatial scale. Sustainable management at district level is manageable if we use latest RS and GIS techniques to help out societal resources. RS and GIS help to find land use change using these it is easy to meet the challenge of developing countries to manage and increase food resources for the high growth population. This can help to strengthen the existing institutional capacity.