

A Method to Estimate Wheat Yield Using Landsat Data

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Abstract : The increasing demand of food management, monitoring of the crop growth and forecasting its yield well before harvest is very important. These days, yield assessment together with monitoring of crop development and its growth are being identified with the help of satellite and remote sensing images. Studies using remote sensing data along with field survey validation reported high correlation between vegetation indices and yield. With the development of remote sensing technique, the detection of crop and its mechanism using remote sensing data on regional or global scales have become popular topics in remote sensing applications. Punjab, specially the southern Punjab region is extremely favourable for wheat production. But measuring the exact amount of wheat production is a tedious job for the farmers and workers using traditional ground based measurements. However, remote sensing can provide the most real time information. In this study, using the Normalized Differentiate Vegetation Index (NDVI) indicator developed from Landsat satellite images, the yield of wheat has been estimated during the season of 2013-2014 for the agricultural area around Bahawalpur. The average yield of the wheat was found 35 kg/acre by analysing field survey data. The field survey data is in fair agreement with the NDVI values extracted from Landsat images. A correlation between wheat production (ton) and number of wheat pixels has also been calculated which is in proportional pattern with each other. Also a strong correlation between the NDVI and wheat area was found ($R^2=0.71$) which represents the effectiveness of the remote sensing tools for crop monitoring and production estimation.

Keywords : landsat, NDVI, remote sensing, satellite images, yield

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