Abstract

To determine the appropriate indices to assess plant production, field data and digital satellite data from Eshghabad of Neyshabur Ranges were used. Cover percentage and Plant production data from 60 plots of 100 square meters from May 10th to May 30th (20 Ordibehesht to 10 Khordad in Persian calendar) were picked in systematic random sampling in the study area. Also, Landsat TM satellite data were used related to the May 2012. Then, in order to apply the required corrections of the images geometric, radiometric and atmospheric correction were applied on the images respectively, and also to improve and enhance the images, linear stretching and histogram equalization algorithms were used. Then, the images analyzed using the principal component decomposition, tasseled cap, spectral Ratios; as well as various vegetation indices such as indices of soil lines were calculated, and the value of the spectral indices and vegetation principal components were extracted from the sample points. In the next stage, to select the appropriate indices, first the correlation between production rates and digital value of indices were investigated and then, the index having the highest correlation with each parameters was selected. The results showed that there are significant correlation ($p < 0.01$) between the separation indices of soil line with vegetation cover and plant production in the study area. The highest correlation was owned by $TSAVI_1$ index for vegetation cover that is correlated with $R2 = 0.736$ and SAVI index for plant production that is correlated with $R2= 0.677$. In the next stage vegetation cover and plant production map was produced using the best vegetation index in the ranges of study area. Finally, the accuracy of generated map was evaluated using error matrix and accordingly the overall accuracy calculated 0.889 and kappa coefficient obtained 0.80 for cover map and overall accuracy calculated 0.80 and kappa coefficient obtained 0.71 for production map.

Key words

Vegetation index- Remote sensing -Vegetation cover percentage - ranges production- Mian Jolgeh

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Estimation of vegetation cover percentage and range land production in Myan Jolgeh of Neyshaboor using remote sensing

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