**Suggested Topics**: Remote sensing Applications (agriculture & Crops)

**Paper Title:** Possibilistic Clustering And Support Vector Machine To Cotton Crop Classification And Its Investigation With Different Vegetation Indices

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**Abstract**

This presents a method for cotton crop classification from LISS-III satellite images using possibilistic clustering and support vector machine. The main contribution of the work is to investigate the performance of the method proposed to find the better vegetation indices to do cotton crop classification. In the method, at first, possibilistic clustering algorithm is applied to segment the cotton crop region by grouping the similar pixels together. Then, SVM is applied with the image data which is formed with the original vegetation indices values along with segment label generated by possibilistic clustering algorithm to find the pixels belonging to cotton crop. This method is applied to five different vegetation indices such as SR (Simple Ratio), NDVI (Normalized Difference Vegetation index), TNDVI (Transformed Normalized Difference Vegetation Index), SAVI (Soil Adjusted Vegetation Index) and TVI (Triangular Vegetation Index) to identify cotton crop using temporal multi-spectral images. The investigation was performed with LISS-III satellite images through the classification accuracy. The results showed that SR index is better for crop classification in LISS-III image as compared with other indices. The classification accuracy reached in SR is 94.85% as compared with other indices achieved the values of 94.62%, 94.68%, 93.25% and 94.47%.

**KEY WORDS:** Posssibilistic Fuzzy-c means, SVM, LISS-III, Vegetation Index (VI)

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