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An ideal crop spectral signature data bank of China using MODIS and Ground truth data

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Cropping patterns and the dynamics are important factors affecting land surface processes in agricultural areas. This paper describes an ideal spectral signature data bank of major farming systems in China produced using remote sensing and ground truth data. The data bank was based on 2040 ground truth points collected in year 2007 to 2008 from the major cultivated areas of China. Temporal vegetation dynamics of these points were extracted from the MODerate-resolution Imaging Spectroradiometer (MODIS) monthly Maximum Value Composition (MVC) of Normalized Difference Vegetation Index (NDVI). Spectral matching techniques were then performed in each of the 11 agro-ecological zones in China to cluster individual points into groups. Therefore an "ideal spectral signature" is produced representing the typical crop dynamics of the region. The resultant data bank contains cropping patterns for each of the 11 zones across China. This information includes major crop types, their growth periods, NDVI magnitude and annual dynamics, crop rotations, and cropping intensities. The data bank provides a quick snapshot of agriculture information across large scale and serves as a tool to parameterize agricultural areas in China.