



Use of multispectral images for the characterization and management of hops fields

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In agriculture, remote sensing (RS) and geographical information system (GIS) has been an important tool for identifying, evaluating, monitoring and management the crops. As well as improving efficiency in the use of inputs, optimizing irrigation management, streamlining decision making, reducing environmental impacts and improving the conservation of natural resources.

The aim of this study was to analyze multispectral satellite images using classification trees to see which are the variables that best characterize hop cultivation. As well as building crop monitoring curves.

The study area was in plots of hops variety nugget in Abegondo, A Coruña and Carrizo de la ribera, León. The images were downloaded from the official website of each satellite. Images of a 10-year period of LANDSAT-7 and 2-years were downloaded for LANDSAT-8 and SENTINEL-2 May to September. The methodology was based on a linear transformation of the spectral bands expressing the spectral behavior of crops and natural vegetation. A correlation between the indexes analyzed (NDVI, NDRE, SAVI, TCARI/OSAVI, PCDI, SIPI, MSI, NDWI) and the field data related to production.

Results showed that the energy reflected in certain stages of crop development and in certain spectral bands are well related to the final yield of the hops. This study is useful to implement a correct irrigation of hop crop, due to their higher requirement.