Yield-NDRE correlation

Aim

The aim of this analysis is to find the correlation between yield vs NDRE images to identify the period in the season that vegetation indices is most correlated with yield.

Field

G & C Houston - Terriadi – 1.

Data

Twenty-four NDRE images acquired by satellite and plane from November 4, 2017 to March 29, 2018.

The plane image dates are:

11-12-2017, 18-12-2017, 19-12-2017, 03-01-2018, 19-01-2018, 19-02-2019.

Shapefile of yield consisting of ~150,000 points.

Method

Three approaches were experimented to find the best result. Each of the approach is discussed below.

Method 1: One-fifth of the yield data was randomly sampled the corresponding NDRE data at the points was extracted. Correlation analysis of yield per NDRE image was then performed.

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Method 2

A regular grid of 100 points in the field was generated. Yield points were converted to raster. The regular grid was overlayed over the yield raster and NDRE image to obtain a data frame of yield and NDRE values. Correlation analysis of yield per NDRE image was then performed.

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Method 3: 5-zone shape file per image was derived using the image NDRE values. Yield data (points) and NDRE values within each zone were averaged. Correlation analysis of zonal yield per NDRE image was then performed.

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