



COFFEE RUST CONTROL: NEW MONITORING TECHNOLOGIES FOR A BETTER FUTURE

The problem:

Since the first historical appearance in the 19th century, coffee leaf rust (CLR) has spread to all of the coffee cultivation areas in the world, and it is still nowadays one of the biggest challenges that the coffee industry needs to face. Currently, **on-site detection** is the only effective method for monitoring its spread. However, accurate and periodic detection over wide regions becomes highly **inefficient**, as it must be conducted independently by each farmer with ground surveys. The current tracking system, therefore, inhibits the possibility of coordination among coffee growers in the CLR prevention phase.



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Collaborating Institutions:



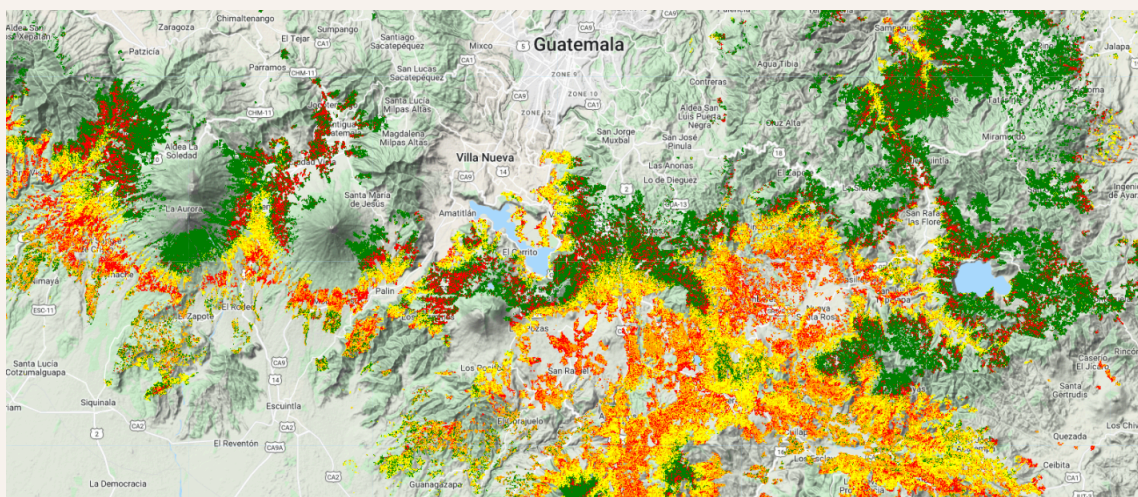
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The solution:

This study aims at developing an innovative monitoring method that allows to identify CLR in coffee cultivated areas using **multispectral resolution imagery** and the cutting-edge **airborne LiDAR** technology. By studying the reflectance of healthy and infected coffee plants in the near-infrared electromagnetic spectrum, and by removing the signal coming from the canopy, i.e. shading trees, we are able to use **machine learning** techniques to predict the spread of the disease.

The outcome of this research project is a **high-resolution real-time map**, that shows the intensity of CLR over large areas. Thanks to this new tracking system, it is possible to develop a regional integrated plan for fighting the spread of the disease.



Coffee rust incidence:

