

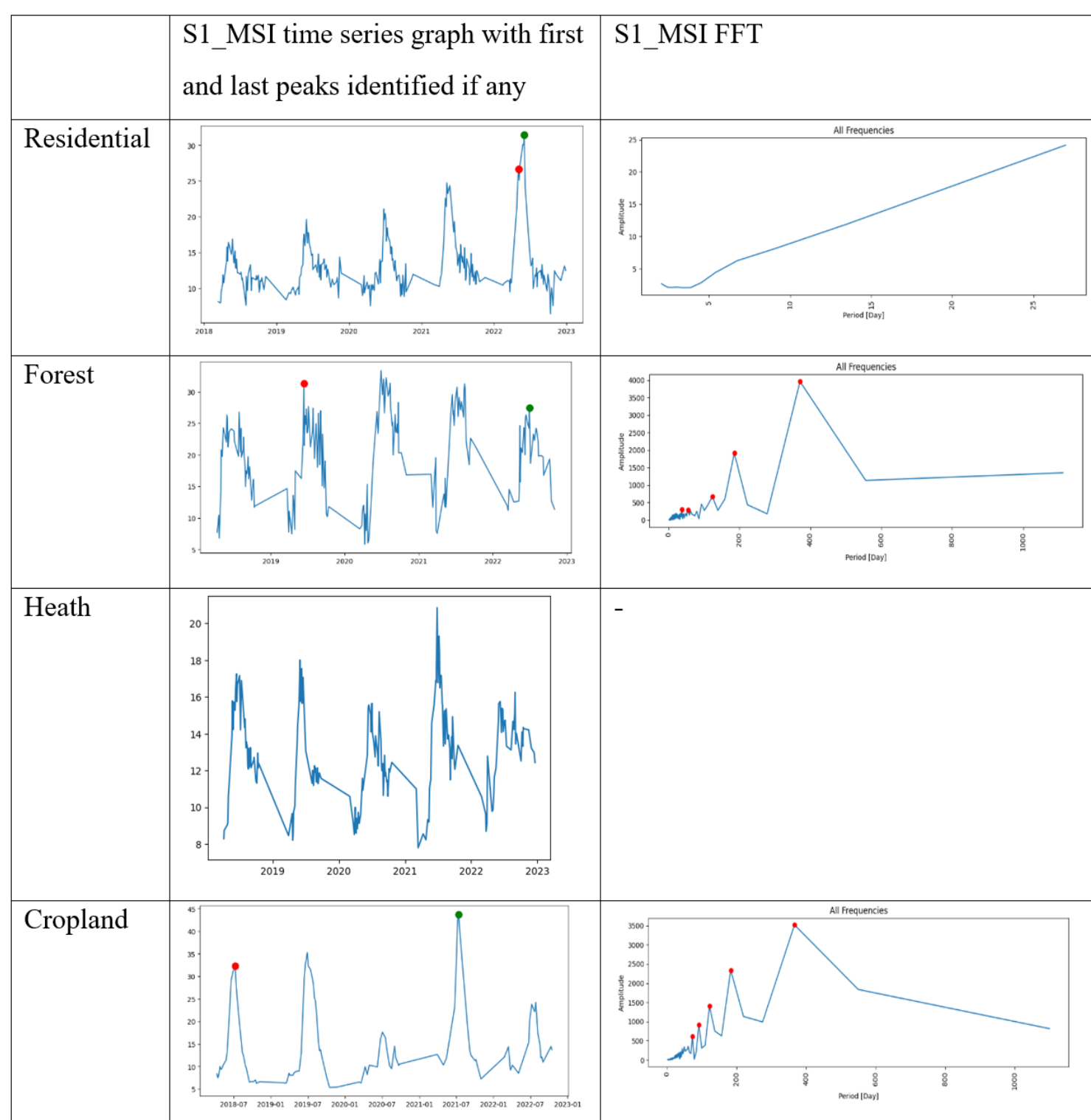
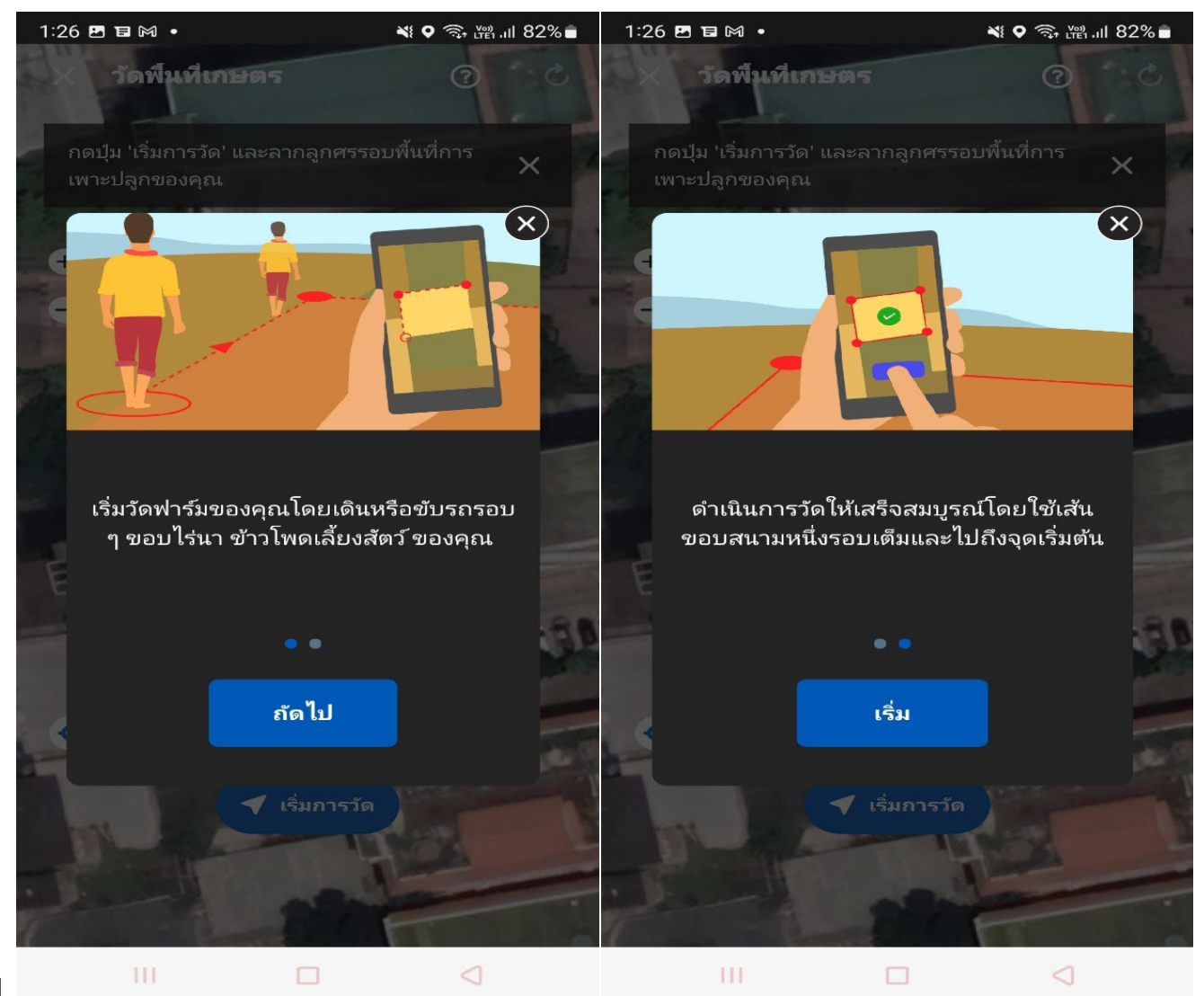
# Detection of crop fields in Ukraine

## Using S1\_MSI index

Student: Inbanathan Vaishnavi    Supervisor: Dr Li Fang

### Project Objectives:

This project aims to validate the field boundaries drawn by farmers in Ukraine as a crop field through Yara International's FarmCare application as incorrectly drawn field boundaries will affect the assessment of the performance of digital solutions developed by Yara.



### Approach:

A supervised learning model using the maximum and minimum S1\_MSI values, presence of seasonality, periodicity and the size of field as predictors, was built to output either cropland or non-cropland for every field boundary. Fast Fourier Transform algorithm was applied to the S1\_MSI time series graph to obtain the periodicity for the various land use classes.

### Conclusion:

Random Forest was the best classifier for this task with an accuracy of 93%. Maximum S1\_MSI value, presence of seasonality and the periodicity proved to be the most important features in determining the class the field belongs to.