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Crop yield evaluation using sentinel satellite imagery and modelling methods

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Agricultural yield is largely determined by weather conditions during the crop growing season. A comparison of meteorological indicators between low and high arable yields revealed significant ($p > 0.05$) differences in meteorological indicators (Gobin, 2018), and these change with crop. Further analysis revealed differences in climate resilience (Kahiluoto et al., 2019).

An important aspect of crop yield assessment concerns crop growth development and subsequent yield prediction (Durgun et al., 2016). Current models have predominantly concentrated on the relation between meteorological data and crop yield (Gobin et al., 2017). A lot of data are available on the input side to include soil and weather, but very few on crop development and yield at the field scale.

A new era of satellite remote sensing and sensor technology has already offered a paradigm shift to data rich environments with unprecedented possibilities to monitor crop development at higher spatial, temporal and spectral resolutions. Combining modelling and statistical analysis with monitoring from remote sensing presents new opportunities to understand crop growth as a basis for crop yield assessment (Durgun et al., 2020) and further developments in the agriculture, insurance and bio-economy sector.

Examples of common arable crop growth assessment will be drawn from different grants and projects.

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