# Combined use of VHR WorldView-2/3 and Planet datasets for agricultural monitoring

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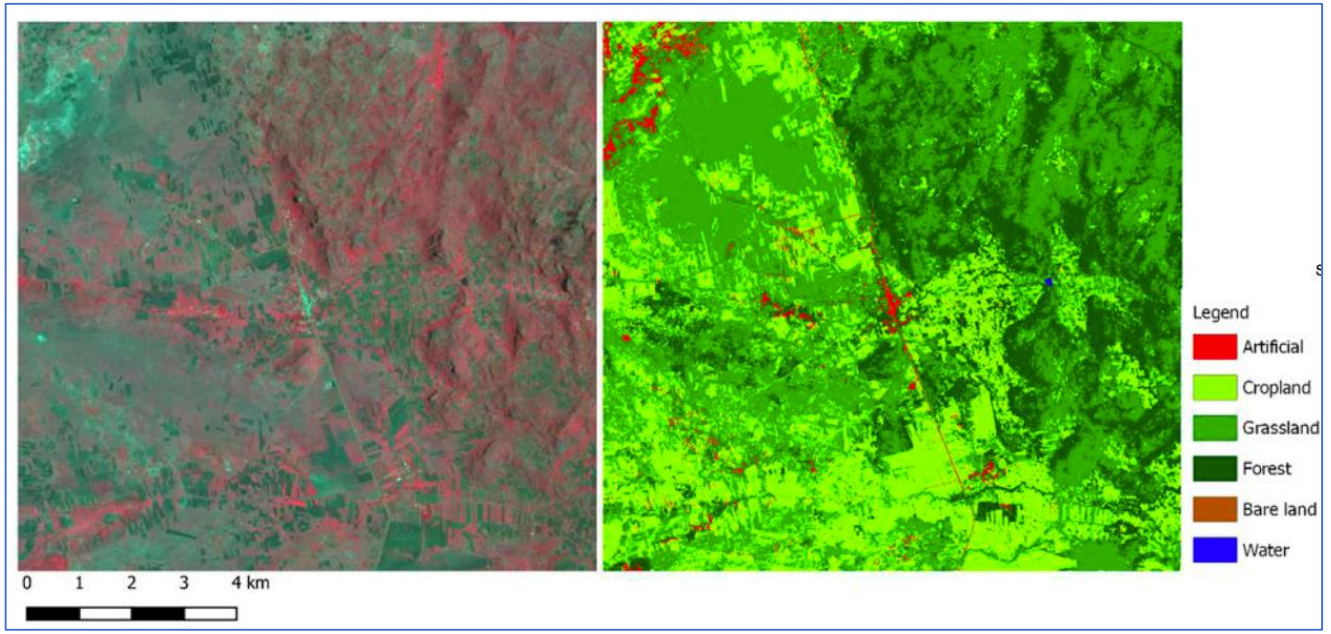
**Purpose**: Global agriculture monitoring

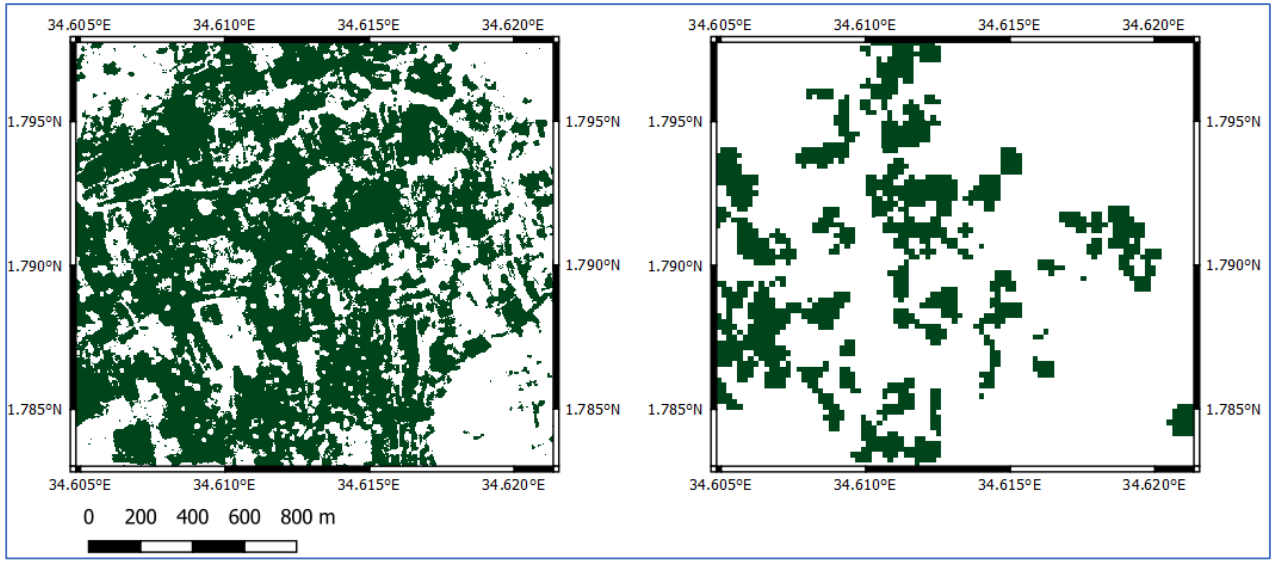
**Study Objective**: Evaluate usefulness of commercial imagery for crop type mapping and yield assessment (corn and soybean over the US)

**Imagery**: PlanetScope

**Findings**: While Planet imagery is spectrally limited, its higher temporal resolution allows for a more accurate identification of crop phenological stage critical to yield assessment. The higher spatial resolution helped explain field-scale yield variability for corn and soybean in the US. The imagery allowed mapping of small-holder fields in Uganda, and reduced bias in crop area estimates. The data quality layer (related to clouds, shadows or poor-quality pixels) that accompanied the imagery was unreliable. Planet imagery is radiometric inconsistent, and not at par with Landsat-8, Sentinel-2, and Terra/Aqua. Extensive validation of atmospheric correction and regular monitoring of radiometric calibration trends is required.




False-color composition (left, Planet acquired on 31 March 2018) and land cover map (right) for the Namalu region in Uganda generated from processing 314 Planet scenes in 2018 and classified using neural networks.




Cropland map for the Namalu region in Uganda in 2018. From PlanetScope at 3 m resolution (left); cropland extracted from ESA CCI land cover map for Africa derived from Sentinel-2 for 2016 at 20 m (right).