Precision agriculture informed by autonomous UAS

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Technological developments in the agricultural sector will change the cultivation structure towards small-scale fields accounting for heterogeneities in soil texture, topography, distance to surface waters etc. The overall aim is to reduce the impacts to the environment by simultaneously keeping high yields. We will present first experiments with an autonomous Unmanned Aerial System (UAS) for precision agricultural monitoring. The system consists of an air-conditioned hangar, which protects it from criminal acts and weather conditions, and charges the drone between flights. Beyond visual line of sight (BVLOS) operations are possible, which increases flexibility and reduces human interactions. Multispectral and infrared observations are able to provide adequate spatiotemporal data on plant health and water availability. This information can be used for agricultural management and intervention, such as irrigation.

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