

Interactive comment on “Crop water stress maps for entire growing seasons from visible and thermal UAV imagery” by Helene Hoffmann et al.

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Answer to Anonymous Referee #2 (Received and published: 1 November 2016)

First, thank you for constructive and valuable feedback!

Referee comment: Hoffman and others investigate early and late-season vegetation indices from a UAV platform from a barley field in Denmark. The challenge of partial canopy cover is described nicely and the manuscript is in my opinion publishable following a few minor considerations. Where are the data from Fig. 2 from? The figures could be created in higher quality in almost all cases. Are the temperatures on the x axis representative of only a certain case? Please use standard symbols (i.e. not curly braces) in the equations.

C1

Answer: All figures in the manuscript will be uploaded in a better quality. Fig. 2 is not based on actual data. Fig. 2 is a drawing /diagram that should illustrate the trapezoid approach; it represents a standard shape of results when plotted using this approach. This will be more thoroughly explained in the text connected to the figure in the modified version of the manuscript.

Referee comment: What is most lacking in my opinion is a quantification of what, for example, "It was found that the UAV-based WDI index determines accurate crop water status" means. Was crop water status measured in the field? I noted no leaf of plant-level measurements, so such statements are not able to be validated.

Answer: We will reword sentences like this one, where stated conclusions might extent further then what data can validate. The sentence "It was found that the UAV-based WDI index determines accurate crop water status" will be rephrased into 'It was found that the UAV-based WDI index is in agreement with measured stress values from an Eddy Covariance system.'

Referee comment: With respect to the conclusions, how much water should be added to stressed areas? At the moment it is a nice remote sensing-based application that struggles to be fully applicable in the field.

Answer: We believe that the relation between obtained WDI values and the amount of water needed, definitely is worth investigating. However, a direct link between WDI results and amount of water needed might depend on the type of vegetation and a fully and smooth applicable solution is the objective for future studies.

Referee comment: It is publishable after the authors take more care to not over-extrapolate results to actual plant-level conditions.

Answer: We will take care and rephrase concluding sentences which in the original version of the manuscript might over-extrapolate results, see for example the rephrasing in answer above, regarding 'accurate crop water status'.

C2

