

Hydrol. Earth Syst. Sci. Discuss., referee comment RC3  
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## **Comment on hess-2022-96**

Anonymous Referee #3

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Referee comment on "FarmCan: a physical, statistical, and machine learning model to forecast crop water deficit for farms" by Sara Sadri et al., Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2022-96-RC3>, 2022

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Hydrological forecasts provide valuable information for agricultural planning and management. This paper has developed a physical, statistical and machine learning model, which is called FarmCan, to forecast crop water deficit at farm scales. One feature of FarmCan is the integration of remote sensing datasets, including soil moisture, root zone soil moisture, precipitation, evapotranspiration and potential evapotranspiration. Through the case study of four farms in Canada. The usefulness of FarmCan is demonstrated.

There are three comments for further improvements of the paper.

Firstly, there is a gap between rainfed farms and needed irrigation. Specifically, four rainfed farms are investigated in this paper (Lines 85 to 86) and the attention is paid to the needed irrigation (Lines 107 to 112). It is noted that rainfed and irrigated systems are two distinct approaches to agricultural production and that irrigation is generally not involved in rainfed systems. Please clarify the issue of needed irrigation in rainfed farms.

Secondly, the irrigation if applied would augment soil moisture and then affect

