

## Second review comments on the Terron et al paper for SOIL

J.Bouma

The authors have made a serious effort to revise their paper, considering comments by the reviewers. The quality of the English language is excellent now. I applaud the change of the title of the paper, as suggested by me, which now covers the content much better than the original title. Emphasis is now on the spectral analysis and this illustrates well the main contribution by this paper. The descriptions of raw data obtained for the various years are very long. The readability would be improved if the authors would try to focus more on some main items.

But I repeat my earlier statement that the authors are to be congratulated for a well executed field study, with replicates, complete with a rigorous statistical analysis. They also measured weather conditions on the spot with state-of-the-art equipment and they used a lysimeter to estimate evapotranspiration. But I will not repeat here my comments of my (long) first review. They still stand.

The ultimate conclusions ( lines 349-351) are rather underwhelming: (i) “the higher the water dose, the higher NDVI”. This is to be expected, isn’t it? ; (ii) “there is a high variability in space and time”. Yes, this will be agreed upon by any field soil scientist ( surprising that in lines 239 and 275 variability of NDVI is mentioned, but not shown); (iii) “management should be adapted to reflect the variability observed”. Sure, but how? Just following the NDVI is questionable in my view ( see first review). When you see changes you are too late but, aside from that, how much should you irrigate in spatially variable patterns?? This is not discussed. That’s why I like like real-time modeling, or , more modern, in-situ moisture sensors. Howel ( 2001) is right ( lines 333-335): we need intra-year management. I don’t believe that this paper provides a key to that, but it does provide building blocks based on field testing. I take the liberty to mention some studies on precision agriculture using real-time modeling. (These studies would have benefitted by having NDVI measurements to further calibrate and validate the model)

Van Alphen, B.J., Stoorvogel, J.J., 2000. [A functional approach to soil characterisation in support of precision agriculture. Soil Sci. Soc. Am. J. 64, 1706–1713.](#)

Van Alphen, B.J., Stoorvogel, J.J., 2001. [A methodology for precision nitrogen fertilisation in high-input farming systems. Precis. Agric. 2, 319–332.](#)

Van Alphen, B.J., Stoorvogel, J.J., 2002. [A case study on precision nitrogen management in Dutch arable farming. Nutr. Cycl. Agroecosyst. 62, 151–161..](#)