



SDI Review Form 1.6

PART 1:

Journal Name:	American Journal of Experimental Agriculture
Manuscript Number:	2013_AJEA_3348
Title of the Manuscript:	Optimal time of supplemental irrigation during fruit development of rainfed olive tree (OleaEuropea, cv.PicholineMarocaine) in Morocco

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- This form has total 9 parts. Kindly note that you should use all the parts of this review form.



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PART 2: Review Comments

	Reviewer's comment	Author's comment <i>(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)</i>
<u>Compulsory</u> REVISION comments	The manuscript, as planned, has a local interest. Although interesting, the results obtained remains tighten to the methods used for applying water to the plants. The absence of accurate measurements of effective water requirements, soil moisture content, plant water status, etc. did allow the reader to understand the level of drought stress reached by the plants, and to differentiate treatments. Nevertheless, I realize that quite a lot of work was invested already in a rather demanding experiment. I, therefore, wish to highlight a second solution, that the focus of the analysis of this data set would be moved partially away from addressing the effect of irrigation potential on fruit and oil yield, concentrating on some fundamental aspects of traditional management practices in olive tree orchards of a semi-arid environment, like Morocco. Perhaps, a more detailed analysis of the correspondence between water application and agronomic sustainability of traditional olive tree growing might provide with an interesting angle. The estimation of easily usable water reserve (?) was rather approximate. The system used to quantify watering is rudimentary. Plant and soil	



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	water status were not monitored and, therefore, one cannot be sure of the effectiveness of watering treatments. Again, Authors did not provide the evaporative demand, and there is no possibility to compare these results with other research, within the frame of experimental works on irrigation of olive tree orchards. How was the development of fruit tested? Pit hardening and fruit development may vary from year to year and must be periodically monitored to detect stage of fruit growth. Endocarp growth occurs in the initial period of fruit development and its subsequent hardening in period II, the phase of suspended fruit growth of the double sigmoid fruit-growth curve, suggests a cyclic pattern of competition for assimilates among different fruit and seed tissues. It is of relatively easy identification, it has a central role in fruit development, and its timing is in close relationship to overall tree physiology. Pit hardening, therefore, has become a widely used marker for both the onset of oil accumulation and the definition of orchard management, in particular irrigation. When actually measured, it is determined by manually slicing the developing fruits with a blade (see Tognetti et al., 2007; Ramos and Santos, 2010). However, complexity is introduced by apparent variation in the timing of pit hardening according to tree water status (e.g., Rapoport et al.,	
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	2004). It seems that the different maturation periods were chosen arbitrary, following the calendar, which may bias Author's conclusion. Speculation on parameters that were not measured here (e.g., line 227-229, fruit cell proliferation; line 240-241, lignification process) should be avoided. The experimental design should be clarified (i.e., distance between treatments). Measuring two branches per tree, on 30-yr-old plants, can hardly give an idea of vegetative development. Line 135-141. This part needs to be developed. Throughout the manuscript I found several missing spaces between words. It may be a problem of the PDF file I have. Please check it.	
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Minor REVISION comments		
Optional/General comments		

Note: Anonymous Reviewer