



SDI Review Form 1.6

Journal Name:	American Journal of Experimental Agriculture
Manuscript Number:	2014_AJEA_14692
Title of the Manuscript:	An outline for Economical and Technical Analysis of Photovoltaic Cells for Agricultural Uses: A case study on Texas weather conditions
Type of the Article	Original Research Article

General guideline for Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound.

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PART 1: Review Comments

	Reviewer's comment	Author's comment (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)
Compulsory REVISION comments	1) Line 76: How do the authors adjust the surface of a PV panel? Do they make experimental panels themselves or do they use commercial panels? Authors should provide the manufacturer characteristics of the panels (I_{sc}, V_{oc}, P_m in STC and number of PV cells in series). Not compulsory to mention the name of the manufacturer. 2) Line 142, Table 1: What does the balance system consist of? This should be mentioned in the text earlier (it is mentioned much later line 260). 3) Line 195 and 196, Figure 1: the fitting equations are not mentioned. What is the mean dispersion? Authors should explain how they obtained the measured values: – What is the sampling time for each measurement and the variation of sun irradiance during measurement? – The temperature should be given.	



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	4) <u>Line 205 and 206, Figure 2:</u> for I-V curves, the fitting equations might not be important. It would be better to plot the I-V curves up to the I_{sc} point and up to the V_{oc} point. Under which irradiance and temperature were these curves obtained? Both irradiance and temperature have to be indicated. 5) The evolution of the short-circuit intensity according to solar irradiance would be really worth displaying. 6) <u>Line 214:</u> "Note the decrease in the conversion efficiency as solar radiation is increased". This is an interesting remark. Even though the efficiency decreases, the power becomes more important when the irradiance is elevated. Maybe the authors could add this comment. 7) <u>Line 229, Figure 4:</u> The graph is attractive. However, the temperature is not indicated.	
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	8) <u>Line 249, Figure 5:</u> Is the histogram obtained by calculations or does it come from literature? Please mention the reference if it was taken from a document. 9) <u>Line 253, paragraph:</u> – What are the “further assumptions”? – <u>line 259:</u> “The total installed cost was assumed to be around triple the value for the crystalline or an assumed \$4/Wp additional balance-of-system (BOS) cost for both systems.” Please quote a reference, if possible, which could justify this assumption. 10) <u>End of section 3:</u> The economic evaluation seems classical. Here are two propositions to show better its interest: – Have the authors taken into consideration the found efficiencies? It would be interesting to show how experimental results could improve the economic evaluation calculations. – The application of the presented economic evaluation to PV energy systems for agriculture could be discussed.	
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<u>Minor</u> REVISION comments	Please correct the mistakes: – line 13: situation needs – line 23: renewable energies – line 23: responsible for 2% of the total renewable energy in 2011. – line 36: kW – line 45: that best fits their economic necessities – line 45: That way – line 46: this paper outlines – line 46: technical and economical – line 82: All data were recorded – line 109: collector ? – line 109: the solar PV cells are exposed to sunlight and are used to charge a battery – line 111: the load is simply connected to the battery – line 121: (W) – line 127: this is done simply – line 135: 1000 kW/month – line 137: the efficiency of the systems – line 178: ϕ is the latitude and δ is the declination angle. – line 178: and other equations – line 186: the circuit of the solar panels – line 241: Table 2 – line 285: considered – line 286: comparing solar PV units – line 316: state tax incentives – line 317: take into consideration – line 318: economic and technical analyses	
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	I might have overlooked other grammatical or spelling mistakes. Please check everything carefully. In the whole text: – The use of the words “cell”, “panel”, “module” and “collector” should be rigorous. – The expression “solar radiation” is badly used regarding physics. It is “solar irradiance”. Please replace namely in lines 124, 126, 214, 217, 219, 236, 241, 244.	
<u>Optional/General</u> comments	Experimental results are very interesting but the presentation of physical data has to be improved. The proposed economic evaluation seems classical. I regret that the paper doesn't focus enough on an application in agriculture. English needs badly to be improved.	

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