

## ***Interactive comment on “Assessment and quantification of marginal lands for biomass production in Europe using soil quality indicators” by Werner Gerwin et al.***

### **Anonymous Referee #2**

Received and published: 24 September 2018

General comments: The manuscript presented focused on the Assessment and quantification of marginal lands for biomass production in Europe using soil quality indicators. The subject of this article is not novel, but the thematic is actual and interesting for publication. The research question is well explained, and it is relevant to the field of the journal. Moreover, the subject addressed in this article is worthy of investigation and provides new information and present a step forward in the knowledge. The contribution to the field, the technical quality, the quality of the presentation, the interest to readers and the added value of the current paper are good. But the depth of research of the paper needs some improvement. In my opinion, the results presented in the paper are important but they are merely described needing a wider discussion. In some

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topics (namely section 3 and 4 of the results section) the discussion should be clearly improved, namely by doing comparisons with past studies and programs implemented (detailed explanation on how this can be done ahead of this revision). Claims are accurately supported by the results and they are reasonable. And in the conclusion, authors addressed to how this work can be continued. So, I recommend the manuscript to be published with the changes and revision made that should incorporate the suggestions and comments presented here.

Specific Comments: Detailed comments concerning the key elements of the paper and questions to be addressed are following below:

Abstract: It does reflect the content. It briefly presents the topic, state the scope of the experiment, and point out major findings.

Introduction: it provides a statement of the problem. It is clear what the authors hope to achieve, especially how this work may contribute to move the knowledge forward. However, the authors should put an emphasis in a sentence or two on how innovative is the methodology applied compared to previous studies and models.

Methodology: In order to replicate the research the information provided is clear. The design is suitable to answer the questions posed and was appropriate and the methodology was adequately described. However some things need clarification:

Section 2.1.3: page 5. Comments/questions: concerning soil contamination: only contamination with heavy metals was considered? Why not also contamination with hydrocarbons, pesticides, etc. Please provide an explanation in the manuscript to help readers with the same doubt. Page 5, lines 28.30, the sentence is confuse. Please rephrase. Page 7, lines 9-12, but those aspects are also included in this work? Perhaps it is better to indicate that those aspects are currently being studied. Just change the sentence to “that are currently being examined”. So that readers understand that is work is still going on.

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Results and Discussion/ Conclusion: Results are presented but the discussion needs improvement in some parts. Some examples on how this section can be improved: in section 3.3, authors should compare the results obtained with other studies that can show similarities or even contradictory aspects. This is important to show the importance of this study and how this study really represent an advancement to knowledge. Also in section 3, authors should also debate that not only correlation data between biomass yields and SQR scores are needed but also between biomass characteristics and SQR scores. Even when yields are high enough to be considered a feedstock, if the biomass does not have proper characteristics, processing it may be technically unfeasible. Authors should also debate that more correlations are needed with annual biomass crops. In this study only perennials were considered.

In section 4.2, it would be interesting to give some examples of success stories with other similar initiatives in the EU (concerning financial support to agricultural and agricultural related chains) and also the constraints and limitations derived from those initiatives, in order to show that that will be always pros and cons. In section 4, it should be also indicated that some of the regulations that are currently applied to biomass processes should be adapted to biomass processes that use biomass from marginal soils. Examples: targets on GHG emissions reduction.

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Interactive comment on SOIL Discuss., <https://doi.org/10.5194/soil-2018-14>, 2018.