**Editor Comments**

Regrettably, we have only two categories, i.e., research paper and review. Articles like "mixture of the two" are not acceptable.  So I'd like to suggest you two options.   
1. I recommend you to withdraw the submission as a research paper and resubmit the revised manuscript as a review after you put more other important articles into the manuscript and take lengthy data off the manuscript.   
2. Otherwise, I feel you have to overcome the weakness of your paper comping from using just only pot experiment somehow.

Answer:

We are quite confused with the requests from us. We can accept your recommendations and the new version will be submitted as a review. However, we cannot remove the data from the manuscript as the tables and figures provide evidence on why the rectangular hyperbola is the best curve for additive design.

**Reviewer(s)' Comments to Author:**   
Reviewer: 1   
  
Comments to the Author   
If the objective of the paper is to provide basics about the concept of additive design and demonstrate the proper data analysis for crop-weed competition, I recommend that you change the manuscript type from a research paper to a review. Because the objective is suitable for a review paper. And as a PURE research paper on crop-weed competition, I’ve judged it has almost no significant information mainly because the experiment was done in pot study. In such experiment where a crop plant surrounded by weed plants but the opposite not, possibility of overestimation of weed competitiveness and underestimation for crop, cannot be denied. You’ve recognized the problem partially concerning pot size, but anyway you got the A value more than 100%, that is no significant in biological sense.   
But I agree with your argument that some weed scientists have reported misleading conclusions because of lack of statistical knowledge. Please change the paper to a review paper with covering previous related studies to attain your objective.   
On revising the paper, I recommend you consider the following points. 

Answer:

The intent of this paper was to develop a recipe how to analyze data from additive designs. The two weed species grown in pots were just used to generate basic data for the step-by-step data analysis.

L130; Eq(3) is cannot be calculated when D=0. How do you calculate these estimates? Explain details, if you want to show the equation.

Answer: Log of zero is undefined. Yes, but it is calculated in R, the package is built to use zero as a number approximated number, e.g., 0.000001.

L135 drm function; As mentioned in the instruction of Package ‘drm’, “drm fits a combined regression and association model for longitudinal or otherwise clustered categorical responses using dependence ratio as a measure of the association”, it usually is applied to categorical responses. You should show the reason why you use it on numeric data if you want to use it against the usual way.

Answer:

I think you misinterpreted the drm function with drm package. In our study, we use the drm function of the drc package (<https://cran.r-project.org/web/packages/drc/drc.pdf>). It is extensively used for dose-response studies in weed research.

L150; Show the formula of the full model and the reduced models. The full model should contain a parameter expressing weed species. How do you contain it in the full model?

Answer:

As we performed all the analysis step-by-step in R software. We provided the codes showing the full and reduced models in the Supp. file. The full model has the: [weed] after the parameter I and A. In the manuscript it was described how we conducted the full and reduced models. Manuscript and Supp. File will complement each other.

L155(the denominator); gl ->df

Answer: Yes!

Yes   
L193,194; Are eq.(8) and eq.(9) exactly same?

Answer: No, they are not the same. The R-square is different from ME. R-square is suitable for linear model and ME for non-linear model. As we described in the M&M section.

L209, 223 lack of fit; The t-values of estimated parameters aren’t always able to be indicators of “lack of fit”. The simplest example is in the polynomial quadratic model. The t-values of the intercepts is NS (p>0.05). From this fact, you can just say “I can’t show the intercepts <> (not equal) 0”, that all. The fact is showing no information on the fitness of the whole polynomial quadratic model compering with other non-nested models.

Answer: Okay, but in some cases the intercept would not be zero but it will have no lack of fit. We need to be caution when making inferences about a simple number. Biologically you’re right, but statistically we would test the hypothesis of lack-of-fit.

Fig.1-5 the label of horizontal axis; m-2 -> pot-1   
Answer: Yes!

**Reviewer: 2**   
  
Comments to the Author   
In the competition test of crops and weeds, it is theoretically shown that rectangular hyperbola is useful from the ecological interpretation of parameters as a model to explain the yield reduction. In weed research, since there are few papers on model selection using AIC, I think that it will provide useful information. The usefulness of Sigmoid models in weed research has also been discussed and it is judged that the usefulness is high as a paper selecting a useful competitive model.   
  
When I first read it, I thought it necessary to explain more why these two species (Richardia brasiliensis and Commelina benghalensis) were used as competitive model weeds.

Answer: The species was used just to collect basic data for the exercise of describing our model selection analysis. It could be any other weed species.

When reviewing, I will describe the point of interest. Since the growth of weeds varies yearly, I would like you to discuss what problems arise when applying this model in real field.   
Answer: The idea was to show that the rectangular hyperbola would fit any competition data in additive design, field and greenhouse conditions. We agree that weed competition will be different in each location, but it does not change the model used. The relationship (rectangular hyperbola) will be same. This is addressed in the discussion when I mentioned the constant final yield (CFY).

Minor fix points   
Figure1.  This figure is not very important when showing the results of the research, so it is better to delete it.   
Answer: I think figure 1 aid to readers have a big picture of all 4 most used curves in additive design.

L72 Alkaike’s information criterion (AIC) -> Akaike’s information criterion (AIC)   
Answer: Yes!

L89-91 Data from an experiment looking at Richardia brasiliensis and Commelina benghalensis competition with corn (Zea mays L.) was used for the model selection exercise.   
  
L104 maximize the completion between -> maximize the competition between   
Answer: Yes!

L129  (four parameter log-logistic curve) ->  (four parameters log-logistic curve)   
Answer: Yes!

L148 AICc values

Answer: Yes!