Comment on bg-2022-172
Anonymous Referee #1


It was difficult to make a recommendation on this paper. On the one hand, the information appears to be correct and is well presented. On the other hand, I ask myself whether the information is sufficiently new and necessary for practicing modellers. I would generally think that most modellers are well-aware of the stated issues. So, would it be worth publishing something that the relevant audience is already familiar with? Or would it still be worth publishing it for the small number of modellers that might still be unaware of these potential problems?

On balance, I think it should NOT be published in its current form. The message is just too mundane. The real question is also not really whether one models the correct parameter values but whether one models the correct ultimate fluxes or other variables that are of ultimate interest. For instance, it is not surprising that the ratio of Jmax:Vcmax inferred from leaf measurements depends on theta. That connection is sufficiently obvious that it does not have to be re-stated. But to what extent would the modelled assimilation rate depend on theta (provided that empirical Jmax:Vcmax ratios and ultimate simulations of assimilation rates consistently all use the same theta)?

Or, alternatively, one might ask to what extent modelled assimilation rates could vary if one combined random choices of theta and derived Jmax:Vcmax ratios. That would emulate the effective situation where empiricists derive Jmax:Vcmax ratios based on some chosen theta, but where those theta values are not communicated or not used in the application of the derived ratios for calculating resultant assimilation rates.

So, the work could become much more valuable if it could be re-focused on illustrating the quantitative importance of the issue of model assumptions for the ultimately required fluxes or other quantities that matter in the real world. It might then reach the threshold of work that provides useful quantitative information even for those readers that might be conceptually sufficiently aware of these issues.