

Interactive comment on “Modification of the RothC model to simulate soil C mineralization of exogenous organic matter” by Claudio Mondini et al.

Anonymous Referee #1

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Modification of the RothC model to simulate soil C mineralization of exogenous organic matter

Claudio Mondini et al. MS No.: bg-2016-551

General comments

This could be a very good paper and the modification to RothC for organic amendments are very important, but I think adding three extra compartments to the model is not the best initial approach to take. The RothC model already allows for two types of material to enter the soil the first being “plant material” and the second “organic amendments”. While the standard version of the model only allows for farmyard manure, there

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is no reason why the authors, like Falloon (2001), should not have changed the proportions entering the DPM, RPM, and HUM pools to better model other types of organic amendment. By adding three extra compartments, will lead to a lower RMSE, due to increasing the number of pools, but this means increasing the number of parameters needed by the model, and making it far more complicated.

The authors should have initially used the approach used by Falloon, and for each different organic amendment they should have started by changing the default parameters for FYM from DPM 49%, RPM 49% and Hum 2%, to obtain more suitable proportions entering the DPM, RPM and Hum pools. This will give a lower RSME, and will also keep the model simple, but if by changing the proportion of organic amendment entering the DPM, RPM, and Hum pools, the model still does not give accurate predictions, the authors could then consider adding one or more extra pools.

So while the modification to RothC for organic amendments are very important, I do not think the authors have chosen the best approach.

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