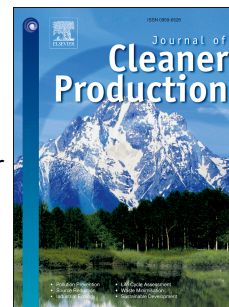


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A comparison of land use change accounting methods: Seeking common grounds for key modeling choices in biofuel assessments

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# 1 A comparison of land use change 2 accounting methods: seeking common 3 grounds for key modeling choices in 4 biofuel assessments

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## 10 **Abstract**

11 Five currently used methods to account for the global warming (GW) impact of the induced land-use change  
12 (LUC) greenhouse gas (GHG) emissions have been applied to four biofuel case studies. Two of the  
13 investigated methods attempt to avoid the need of considering a definite occupation –thus amortization–  
14 period by considering ongoing LUC trends as a dynamic baseline. This leads to the accounting of a small  
15 fraction (0.8%) of the related emissions from the assessed LUC, thus their validity is disputed. The  
16 comparison of methods and contrasting case studies illustrated the need of clearly distinguishing between the  
17 different time horizons involved in life cycle assessments (LCA) of land-demanding products like biofuels.  
18 Absent in ISO standards, and giving rise to several confusions, definitions for the following time horizons  
19 have been proposed: technological scope, inventory model, impact characterization, amortization/occupation,  
20 plantation lifetime and harvesting frequency. It is suggested that the anticipated technical lifetime of  
21 biorefineries using energy crops as feedstock stands as the best proxy for the cut-off criterion of land's

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