

Publication**Estimating the soil erosion cover-management factor at the Europeanscale****JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)****ID** 3127464**Author(s)** Panagos, P.; Borrelli, P.; Meusburger, K.; Alewell, C.; Lugato, E.; Montanarella, L.;**Author(s) at UniBasel** [Alewell, Christine](#) ; [Di Bella, Katrin](#) ;**Year** 2015**Title** Estimating the soil erosion cover-management factor at the Europeanscale**Journal** Land use policy**Volume** 48**Pages / Article-Number** 38–50

Land use and management influence the magnitude of soil loss. Among the different soil erosion risk factors, the cover-management factor (C-factor) is the one that policy makers and farmers can most readily influence in order to help reduce soil loss rates. The present study proposes a methodology for estimating the C-factor in the European Union (EU), using pan-European datasets (such as CORINE Land Cover), biophysical attributes derived from remote sensing, and statistical data on agricultural crops and practices. In arable lands, the C-factor was estimated using crop statistics (% of land per crop) and data on management practices such as conservation tillage, plant residues and winter crop cover. The C-factor in non-arable lands was estimated by weighting the range of literature values found according to fractional vegetation cover, which was estimated based on the remote sensing dataset F-cover. The mean C-factor in the EU is estimated to be 0.1043, with an extremely high variability; forests have the lowest mean C-factor (0.00116), and arable lands and sparsely vegetated areas the highest (0.233 and 0.2651, respectively). Conservation management practices (reduced/no tillage, use of cover crops and plant residues) reduce the C-factor by on average 19.1% in arable lands.

The methodology is designed to be a tool for policy makers to assess the effect of future land use and crop rotation scenarios on soil erosion by water. The impact of land use changes (deforestation, arable land expansion) and the effect of policies (such as the Common Agricultural Policy and the push to grow more renewable energy crops) can potentially be quantified with the proposed model. The C-factor data and the statistical input data used are available from the European Soil Data Centre.

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