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Wind erosion in Moroccan argan woodlands under extensive agro-silvo-pastoral management

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The Moroccan argan woodlands form a unique ecosystem that is at acute risk of degradation and desertification. Beside the great impact on local and regional socio-economical structure, the characteristic landscape is assumed to protect populated and agriculturally productive areas such as the Souss-Massa-region against desertification processes from the adjacent desert areas in Southwest Morocco and Algeria.

The experimental-empirical study with the Trier Portable Wind Simulator was conducted to quantify sediment mobilisation by wind on various surface characteristics associated to argan woodlands under extensive agro-silvo-pastoral management. Tested surfaces included physical and biological crusts, stone and litter cover and ploughed surfaces.

We found that the argan woodlands of the Souss region may be a significant source of wind eroded sediment particularly facing effects of overexploitation and climate change. An adapted land management is key to prevent severe dust production and mitigate possible impacts of land use change and climate change related shifts in wind and rainfall patterns.