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A web based Geospatial Decision Support System to quantify the impact of soil sealing on soil functions

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Soil sealing is considered one of the most dangerous land degradation processes on global, European and national scales. Numerous policies aiming to mitigate this soil threat testify the importance of the phenomenon, which however is continuously growing, or at least does not shows signs of abating. Here we would show a spatial decision support system (S-DSS) – based on a Geospatial Cyberinfrastructure – with the aim of applying it as an operational instrument aiming towards soil sealing mitigation. The system developed within the framework of the LANDSUPPORT EU project (www.landsupport.eu) started on May 2018 has the ambition to impact on those who take decision over soil sealing issues. It currently represents an evolution of a previous S-DSS tool named Soil sealing and landscape planning, still operational and described in a scientific publication (https://doi.org/10.1002/ldr.2802). The system, focusing on mitigating such crucial land degradation, allows the users - freely and via the Web – to produce 'what-if' land planning scenarios thanks to the 'on-the-fly' modelling engines. Therefore, integrated geospatial quantitative data and procedures may be directly and freely used by planners. The system is continuously evolving and is thought to function on the fly from local (administrative limits) to the European scale, addressing among others the issues of rural fragmentation, loss of soil ecosystem services, estimates of soil sealing evolution over time, etc. The tool is being developed with the help of end users and indirectly explores a change of paradigm where soil science and landscape/urban planning work together to provide operational instruments that may be adopted by local communities in addressing soil sealing issues with a proactive approach.