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The impact of agricultural practices on soil compaction and runoff

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Soil compaction caused by intensive agricultural practices using heavy machinery is known to influence runoff processes at the local scale and is often speculated to have an impact on flood events at much larger scales. Due to the complex and diverse mechanisms related to soil compaction, the key processes influencing runoff at different scales are still poorly understood. In this study we are analyzing data from a large number of agricultural studies on the impact of soil compaction on different soil properties such as hydraulic conductivity and bulk density relevant for runoff generation at the plot scale. We compare the observed impacts in relation to climatic and soil conditions. The specific type of agricultural practice causing the soil compaction is also taken into account. In a further step the results of this study shall be used to derive a toy model for scenario analysis in order to identify the potential impacts of soil compaction on runoff processes at larger scales then the plot scale.