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Storm runoff in the foothill headwater area Senotín

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The purpose of the pilot project Senotín (1993–2000) was to prove the methods of revitalization of sub-mountain headwater area (0.38 km²) in the Novobystřická Vysočina Highland (610–725 m a. s. l.) in the Czech Republic. This area was tile-drained and ploughed in 1985. Seven underground clay shields newly constructed in 1995 stopped the function of the tile drainage. Four balks prevented the surface and subsurface runoff. These adaptations improved water retention capacity of the whole catchment, which is demonstrated using an example of runoff formation in the revitalized area. A typical storm rain (total 15 mm, duration 5.6 h, max. intensity 4 mm/20 min) and the consequent runoff was analysed, including the role of the soil in the runoff retardation and water retention. The runoff started in two hours since the rain beginning. The retention reached 98% of the rain total. The runoff lasted for 85 h. The concave-upward shape of the falling hydrograph limb indicates that the maximum retention capacity of the studied catchment is high.

Keywords:

headwater area; storm runoff; water retention; runoff retardation

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