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MODELING SOIL EROSION USING EPIC SUPPORTED BY GIS, BOHEMIA, CZECH REPUBLIC

Sanjay Kumar Jain, National Institute of Hydrology, Roorkee, India
F. Dolezal, National University of Ireland, Galway, Ireland

ABSTRACT

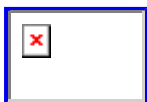
The Environmental Productivity Impact Calculator (EPIC), a complex semi-empirical environmental model with distributed parameters, was used to estimate water erosion on 18 fields of a small (1.42 km²) agricultural catchment called Cernici in a foothills region of Central Bohemia, Czech Republic. Some input data for EPIC (areas, elevations, lengths and slopes) and the field-to-field sediment delivery ratios were prepared using a Geographic Information System. Average erosion rates predicted by EPIC were highest in May to September if the Uniform Soil Loss Equations (USLE) was used. The MUSLE (modified USLE) and AOF (Onstead-Foster method) also showed high erosion rates in December-January. The largest simulated soil erosion rates were found on a few ploughed fields on which crop rotation prone to erosion combined unfavorably with high field slopes and highly erosive weather. A change of crop rotation helped reduce the erosion.

Reference: Jain, S. K. and F. Dolezal; Modeling Soil Erosion Using EPIC Supported by GIS, Bohemia, Czech Republic, Journal of Environmental Hydrology, Vol. 8, Paper 2, January 2000.

CONTACT:

Sanjay K. Jain
National Institute of Hydrology
Jalvi gyan Bhawan Roorkee
247 667 (U. P.)
India

E-mail: sanjay@nih.ernet.in



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