

## **Evaluating the effectiveness of buffer strips in the Austrian agri-environmental programme**

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In the period 2007-2013, the Austrian agri-environmental programme (ÖPUL) subsidizes installation of buffer strips along permanent streams as means to reduce sediment and nutrient input into water courses. Subsidies are linked to certain management restrictions (50 m grassed buffers, no fertilisation, only one cut per year). To evaluate the potential for this kind of buffer strips to reduce sediment input into water courses we attempted to apply a scaled modelling approach. VFSSMOD (Muñoz-Carpena et al, 1999), a plot scale filter strip model with high spatial and temporal resolution was validated and used to obtain buffer strip effectiveness for a wide range of combinations of those input variables with highest sensitivity to sediment delivery. Using these results, a retention effectiveness matrix was built. Main parameters of this matrix were slope of the filter strip, soil texture and amount of sediment input. To apply the matrix to large areas we used an erosion model as surrogate for sediment input. Soil information was obtained from available digital soil maps and slopes were calculated from DEMs. Due to the very low participation levels of the subsidy program a comparison between potential and actual effectiveness turned out to be a rather useless exercise. The low participation levels stimulated the search for optimisation of the present subsidy scheme. Using VFSSMOD again we explored the possibilities of reducing buffer strip length.

### **References**

Muñoz- Carpena, R., J. E. Parsons, J. W. Gillian, J. W. (1999): Modelling hydrology and sediment transport in vegetative filter strips/Journal of Hydrology 214, p. 111-129.