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Modelling pesticide losses in agricultural catchments in the UK

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Pesticide modelling in the UK is complicated by the difficulty of obtaining fine resolution spatially distributed pesticide application data. In a study to develop a diffuse source pollution model of the Exe catchment in the UK, two methods of using regional statistical data on pesticide usage were used to assess pesticide inputs to the USDA SWAT model. Regional data are only available as an average application rate of a particular pesticide per total hectares of each crop grown in the region. This means that apparent input rates are much lower than would actually be used by farmers. The two methods used to distribute pesticide inputs were:

1. Pesticides were applied at a realistic rate to a randomly selected set of fields constituting a percentage of the total available fields, to give an overall usage rate equivalent to the available usage data
2. Low input rates as available from the regional data were applied to all available fields in the catchment

This paper presents the results of this study and gives conclusions on the way that regional data could be used in distributed modelling in future.