

## Figures

Figure 1: Daily rainfall (a), daily runoff (b), application rate (c) and average concentrations of diuron and glyphosate (d) in runoff measured during the study period.

Figure 2: Variation in the relative contribution to the total variability for each factor and its interactions following the time since application for diuron (a) and glyphosate (b), with  $K_D$  : the sorption coefficient,  $t_{1/2}$  : the compound half-life,  $z_{mix}$  : the mixing layer thickness and  $b$  : the exponent of Walker's function. The black bars at the top of the graph mark the data points, i.e. the runoff events that occurred during the simulation period. Gaps between points have been filled by linear interpolation.

Figure 3: For each parameter combination selected after calibration, values of NSE and |PBIAS| calculated with the mean runoff concentrations (a), (b) and their log-transformed values (c), (d) for the calibration period (a), (c) and the validation period (b), (d). The thresholds recommended by Moriasi et al. (2015) are shown with dashed lines.

Figure 4: Mean values of PBIAS and NSE for each year obtained with the parameter combinations selected after calibration for diuron (a), (c) and glyphosate (b), (d). The error bars are plotted by adding/subtracting the standard deviation to/from the mean value.

Figure 5: Standard error of the annual mean NSE (a) and PBIAS (b) values calculated with mean diuron (green) and glyphosate (blue) concentrations and their log-transformed values, depending on the number of years used for model evaluation.

Figure 6: Relative error distribution depending on the time after application for diuron (a) and glyphosate (b), considering one of the selected parameter combinations. The statistical permutation test results are shown through confidence intervals.

Figure 7: Measured diuron concentrations in runoff water over the entire evaluation period and linear and bilinear regressions of the experimental data. The Akaike information criterion (AIC) values are 124.7 and 113.9 for the linear and nonlinear regressions, respectively.