Supplementary information for the discussion

Discussion paper: "**Prediction of dissolved reactive phosphorus losses from small agricultural catchments: calibration and validation of a parsimonious model**" by C. Hahn et al.

Table SD1: Performance of different model versions in three catchments (Lippenrütibach catchment LIP, Stägbach catchment Stäg, Stägbach sub-catchment Stäg2), measured with the Nash-Sutcliffe-Criteria (NSC) (Nash and Sutcliffe, 1970) using simulated and measured P loads. Version 1 – corrected original model, Version 2 – separate urban parameter calibration, Version 3 – separate urban parameter calibration + different soil classification.

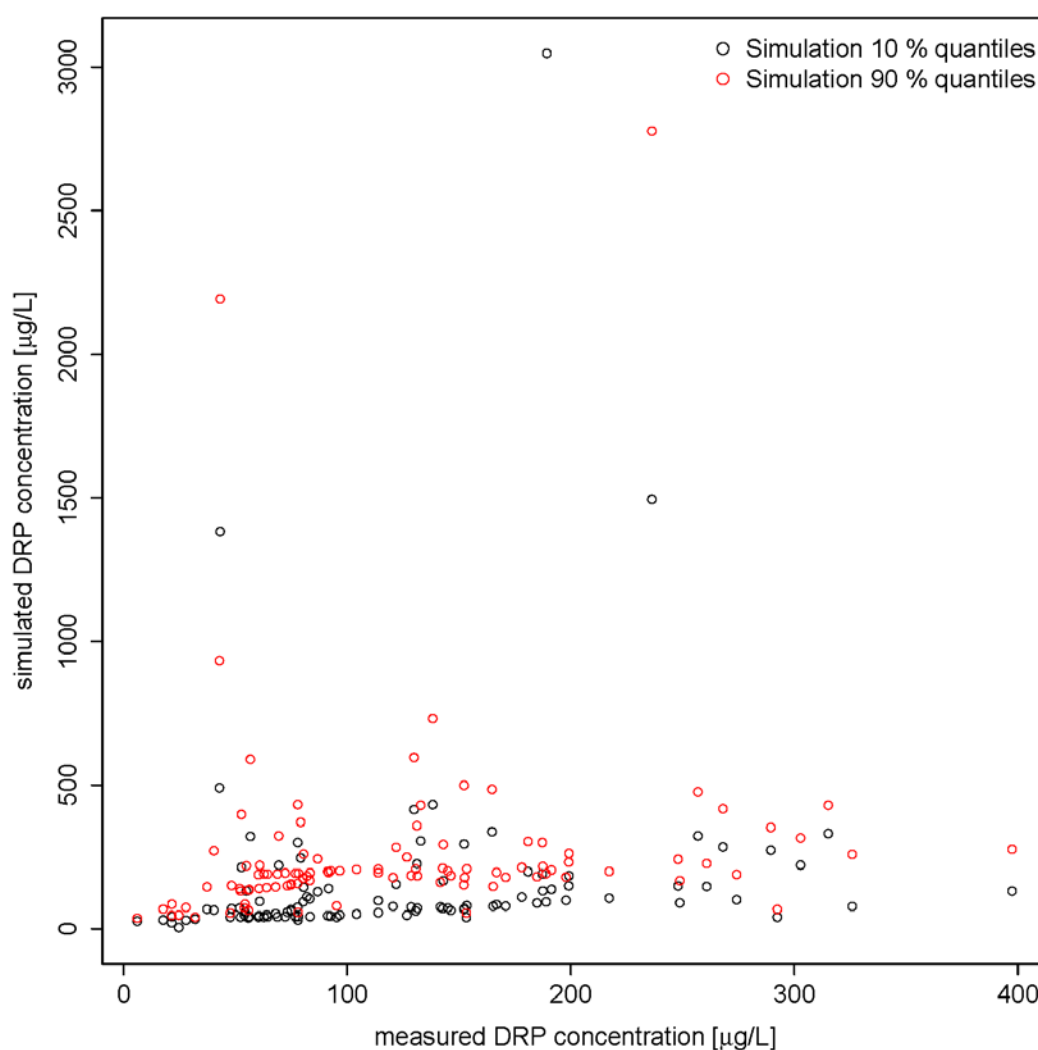| Model version | Lip | | | Stäg | | | Stäg2 | | |
	25 %	50 %	75 %	25 %	50 %	75 %	25 %	50 %	75 %
Version 2	0.54	0.62	0.64	0.37	0.45	0.51	0.55	0.62	0.72
Version 3	0.5	0.56	0.59	0.39	0.47	0.54	0.53	0.68	0.79

Fig. SD1. Measured DRP concentrations versus simulated DRP concentrations of the Stägbach catchment in the year 2010.
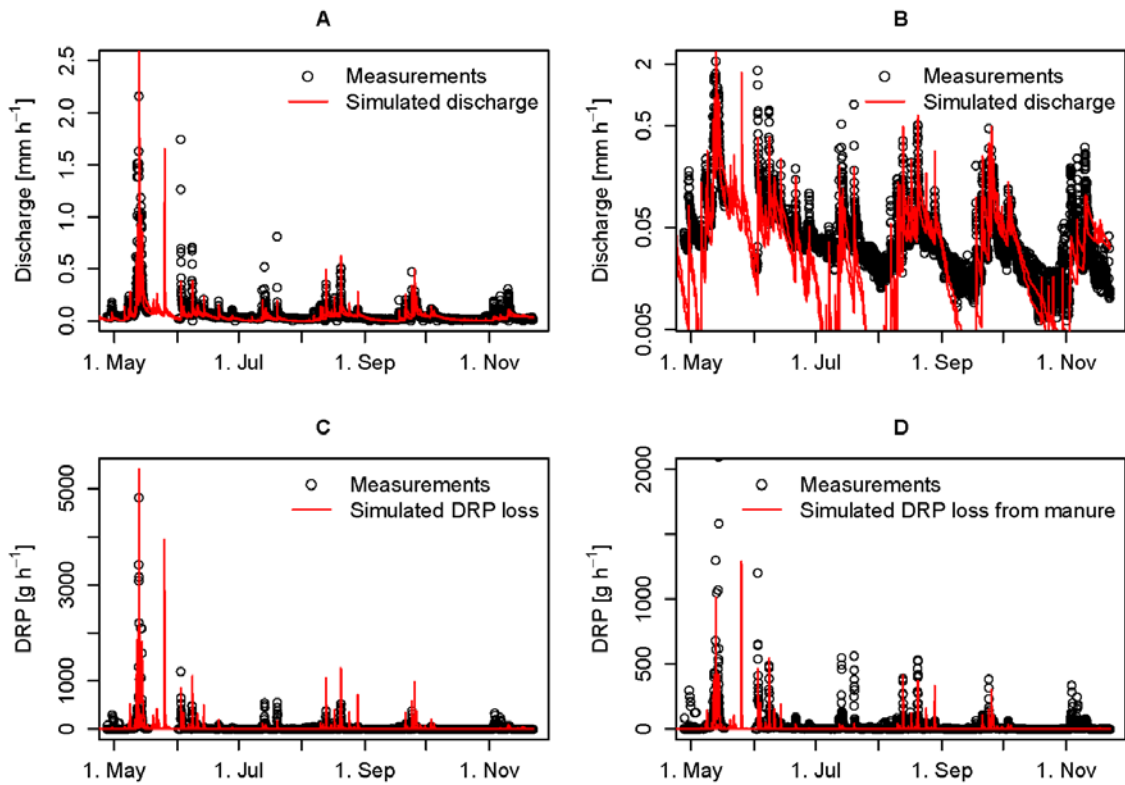
Fig. SD2. Simulations (red lines, showing the 10% and 90% quantiles) using RRP Version 2sq versus measured (points) discharge from the Lippenrütibach catchment in 1999. The y-axes in figures on the right are in logarithmic scale (B) or focus on a certain part of the value range (D). Figure C shows the total range of the DRP loads measured and simulated on a non-log scale.
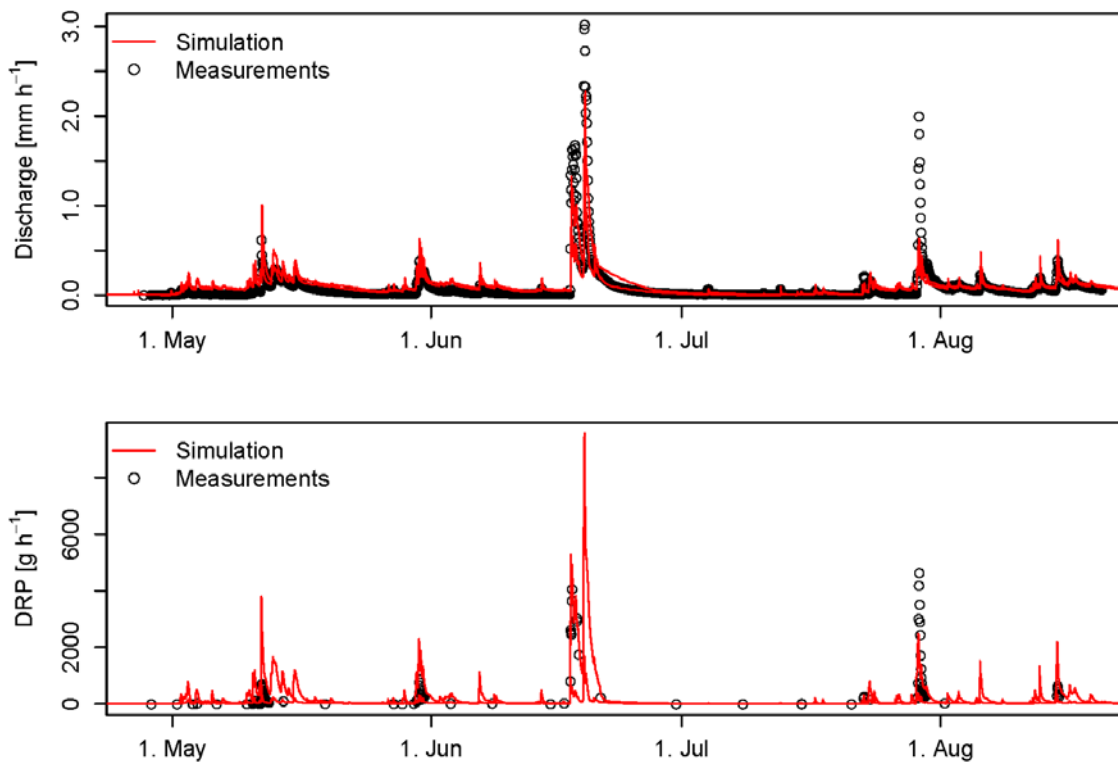

Fig. SD3. Simulations (lines, 10 \% and 90 \% quantiles) using RRP Version 2sq versus measured (points) discharge and DRP loss from the Stägbach catchment in 2010.
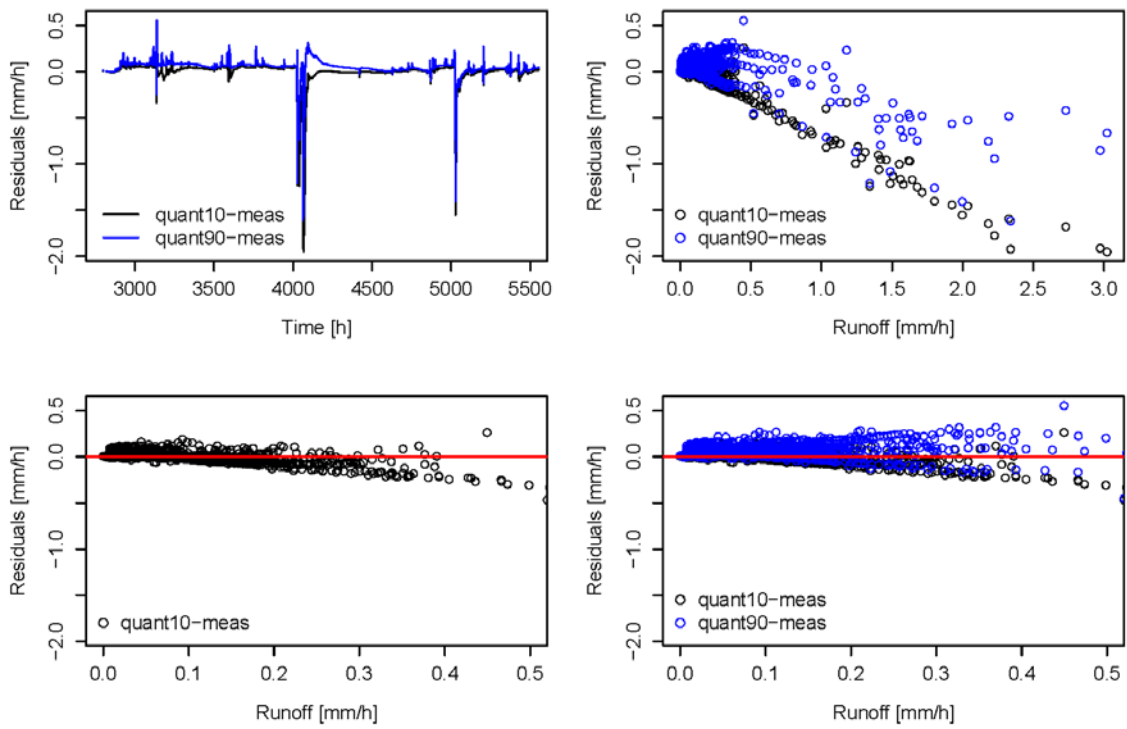
Fig. SD4. Residual analysis for the Stägbach catchment and model version 2 (year 2010)
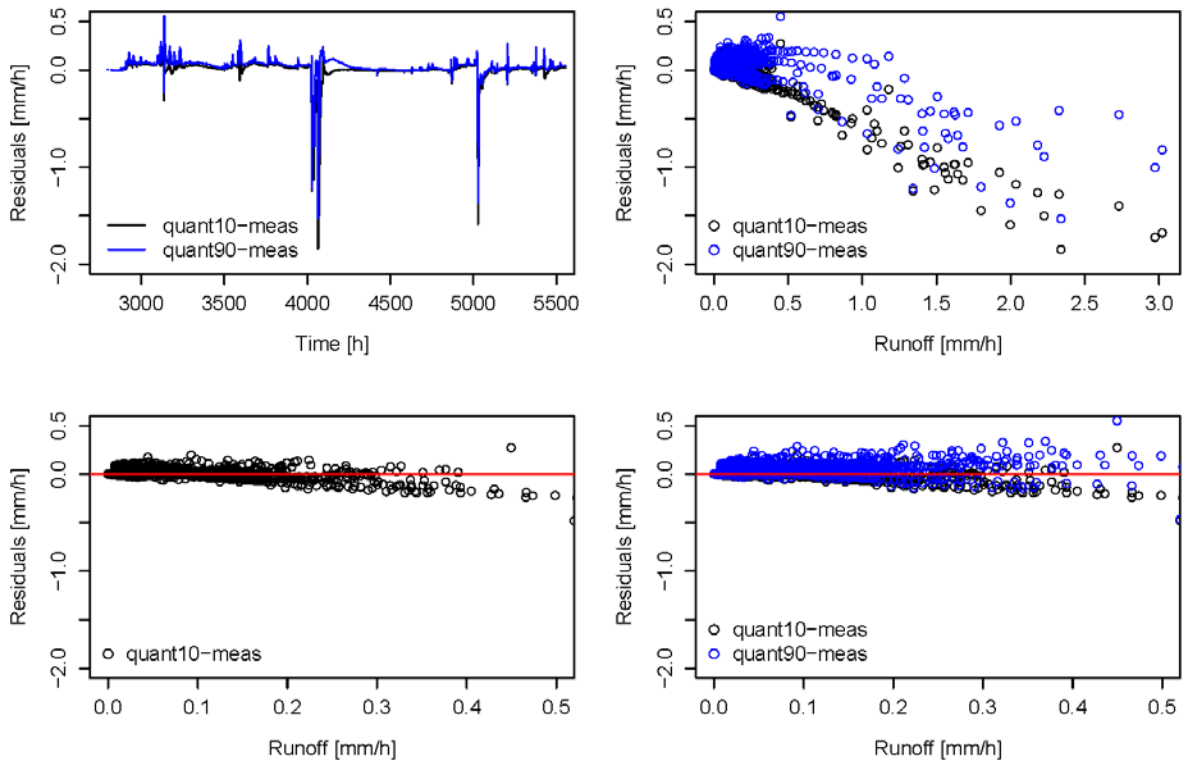

Fig. SD5. Residual analysis for the Stägbach catchment and model version 2sq (year 2010)
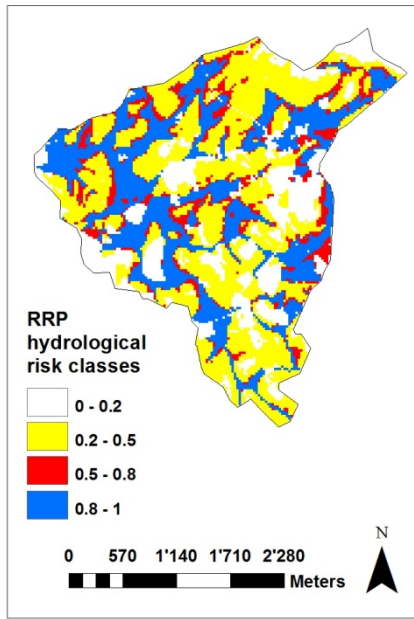
Fig. SD6. Distribution of hydrological risk classes during the large event in June 2010, determined with model version 2sq for the Stägbach catchment
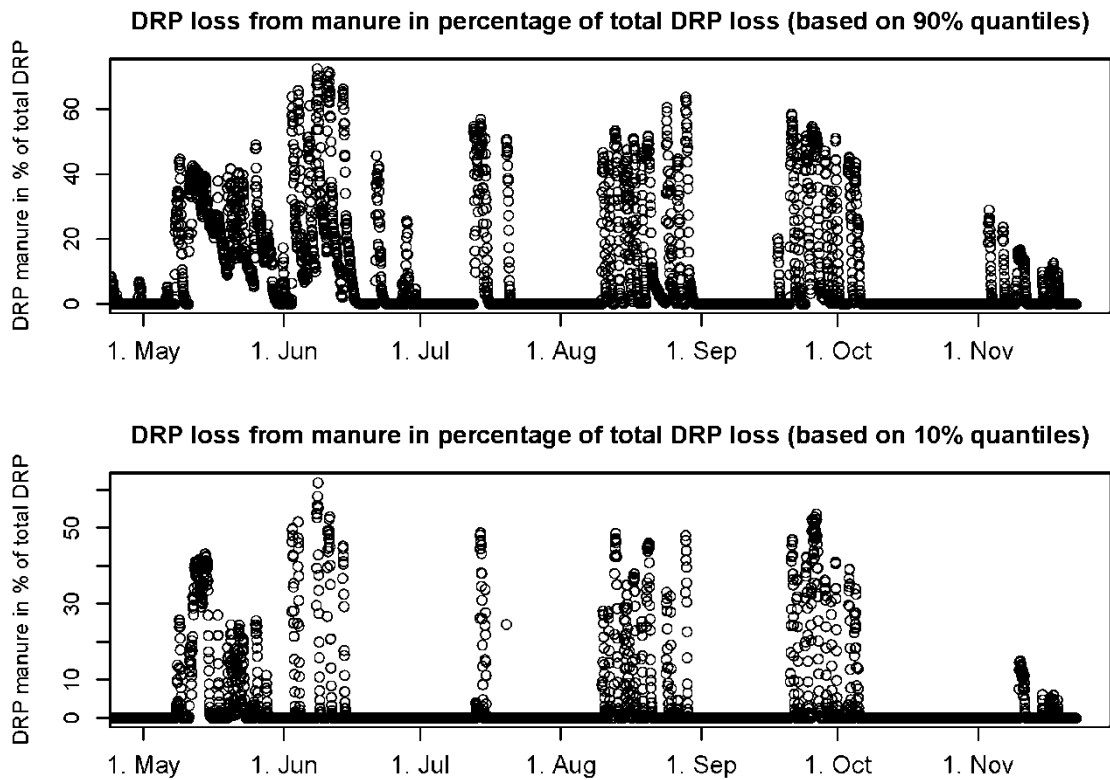

Fig. SD7. DRP loss from manure in percentage of the total DRP loss, Lippenrütibach catchment, year 1999, Phosphorus-Model with h=0.003
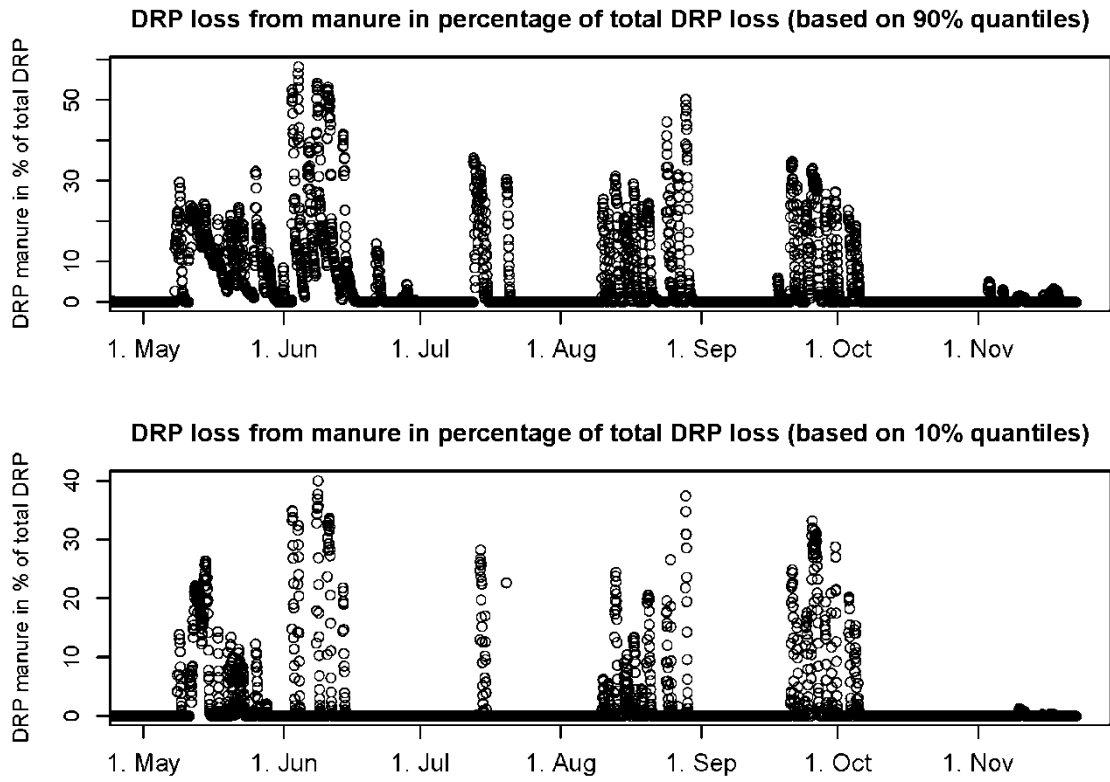
Fig. SD8. DRP loss from manure in percentage of the total DRP loss, Lippenrütibach catchment, year 1999, Phosphorus-Model with h=0.007
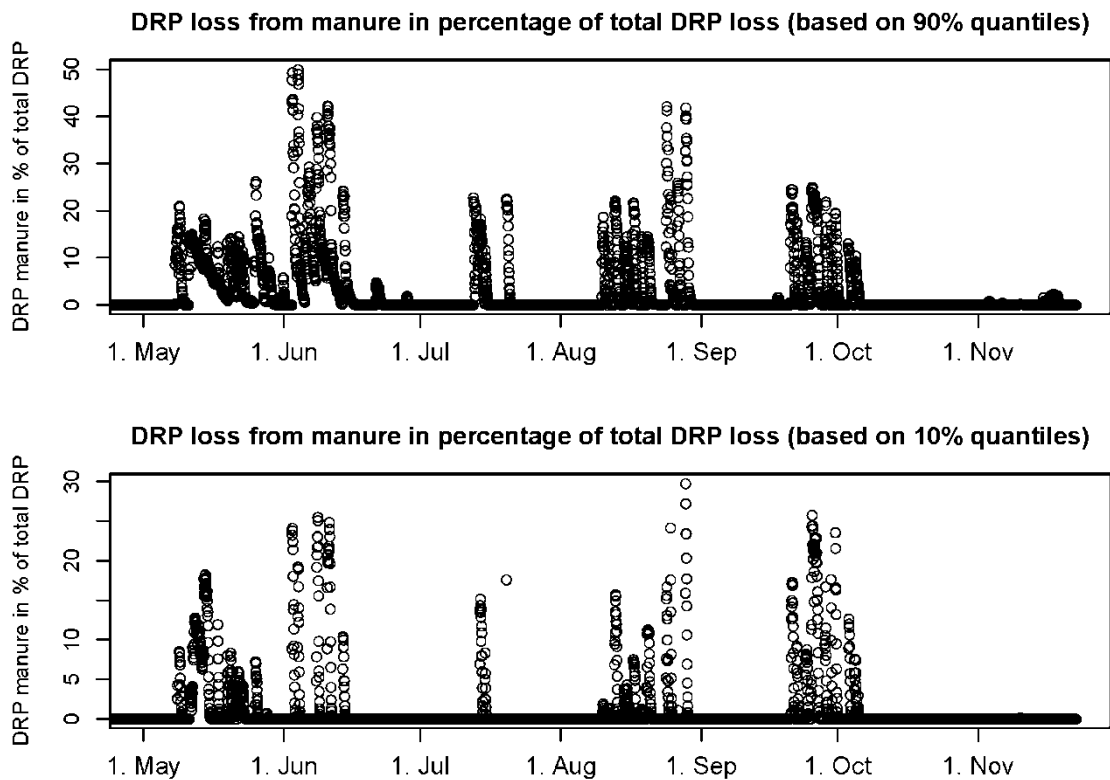

Fig. SD9. DRP loss from manure in percentage of the total DRP loss, Lippenrütibach catchment, year 1999, Phosphorus-Model with h=0.011