



Comparison of COD and SS dynamics in a rice catchment during storms between the growing and non-growing season

Jin-Soo Kim, Jeong-Beom Lee, Jae-Yong Lee, and Si-Hong Li

Dept. of Agr. and Rural Engineering, Chungbuk National University, Cheongju, Korea, Republic Of (jskim@cbnu.ac.kr, 82-43-271-5922)

We compared the behavior of chemical oxygen demand (COD) and suspended solid (SS) in runoff from a Korean rice field catchment during storm events between growing and non-growing seasons. The study catchment has a size of 21.9 ha with a water source of river. Fertilizers were applied at rates of 91 N kg ha⁻¹ and 18 P kg ha⁻¹ as basal and top dressings. The rice fields are shallowly flooded during most of the growing season, and therefore runoff water always occurs during the growing season. However, runoff water occurs only during storms in the non-growing season. Overall, COD and SS concentrations increased with discharge. Event mean concentration (EMC) of COD in runoff water from the catchment during the non-growing season was 2.6 times higher than that during the growing season. However EMC of SS in runoff water from the paddy field catchment during the non-growing season was almost the same as that during the growing season, much lower than that from the upland catchment. This may be because rice roots and residues in paddy soil during the non-growing season greatly reduce transport of SS associated with soil erosion.