

토양 중 Trifluralin, Metolachlor 및 Metribuzin의 이동

김정호, S.E.Feagley¹, L.M.Southwick², G.H. Willis¹, R.L. Bengtson¹

경산대학교 환경보건학과, ¹Louisiana State University

Trifluralin(2,6-dinitro-N,N-dipropyl-4(trifluoromethyl)benzenamine), metolachlor(2-chloro-N(2-ethyl-6-methylphenyl)-N-(2-methoxy-1-methylethyl)acetamide) and etribuzin (4-amino-6-(1,1-dimethylethyl)-3-(methylthio)-1,2,4-triazin-5(4H)one) were applied preemergent to soybean in plots drained or nondrained, in Louisiana. Plots were arranged to give 1683 g/ha of trifluralin, 2759 g/ha of metolachlor and 609 g/ha of metribuzin. The half life of trifluralin, metolochlor and metribuzin in the top 15cm of soil were 42.6days, 18.2days and 15.6days, respectively. The concentrations of trifluralin in runoff water and ground water(1m and 2m deef) were 0.08ng/mL - 0.05ng/mL and 0.4ng/ml -0.08ng/mL, respectively. The concentrations of metolachlor in runoff water and ground water were 0.04ng/mL - 0.08ng/mL and 0.7ng/mL -12.8ng/mL, respectively. The concentrations of trifluralin and metribuzin in runoff water and ground water were smaller than 2ng/mL for trifluralin and 175ng/mL for metribuzin of U.S. Environmental Protection Agency advisory. The concentrations of metolachlor in runoff water and ground water were 19ng/mL - 241.5ng/mL and 41.1ng/mL - 3.3ng/mL, which were much or less than 10ng/mL for metolachlor of the U.S. E.P.A. advisory. Total loss of trifluralin in runoff water was 0.021% of applied amount during three month after application. Total loss of metolachlor and metribuzin in runoff water were 2.93% and 2.31% of applied amount during 21days except applied day, when 4.53% and 4.77% applied amount were lost, respectively. Rainfall timing to pesticide application seems to be critically important to pesticides loss. Trifluralin was moved much hardly in the water and soil. Metolachlor and metribuzin, however, were moved much more easily in the water and soil. Subsurface drainage reduced herbicides losses because most of herbicides were lost in the surface runoff water in drained fields.