

The persistence and penetration of the herbicides isoproturon and chlorotoluron in an unconfined chalk aquifer has been monitored over a 4-year period through soil sampling, shallow coring and groundwater monitoring. Chlorotoluron was applied on plots as a marker compound, having never been used previously on that, or surrounding fields. The fieldsite had a 5 degrees slope with soil depths of 0.5 to 1.5 m and a water table between 20 and 5 m from the soil surface. Where the water table was deepest (9-20 m below surface (mbs)) little or no positive herbicide detections were made. However, where the water table was at only 4-5 mbs, a regular pesticide signal of around 0.1 ug/l for isoproturon and chlorotoluron could be distinguished. Over the winter recharge period automatic borehole samplers revealed a series of short-lived peaks of isoproturon and chlorotoluron reaching up to 0.8 ug/l. This is consistent with a preferential flow mechanism operating at this particular part of the field. Such peaks were occurring over 2 years after the last application of these compounds. Shallow coring failed to uncover any significant pesticide pulse moving through the deep unsaturated zone matrix at the fieldsite.