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**EVALUATING OF MODEL FOR PREDICTING HERBICIDE  
LEACHING IN TROPICAL SOILS**

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Diuron and tebuthiuron have been used in sugarcane crops in Brazil for many years, even on recharge areas of an important aquifer. This work was carried out to evaluate how well a simple model output approximates measured amounts of leaching of these herbicides in a clayey and a sandy tropical soils (respectively, a Typic Quartzipsamment and a Typic Haplorthox, according to the U.S. Soil Taxonomy), using undisturbed soil columns (small lysimeters). Attenuation Factor (AF) is a model based on fraction of applied amount that is likely to leach past a specified soil depth. It calculates rates of leaching and degradation, and assumes steady water flow. Therefore, soil sorption and degradation were also studied in laboratory work. Sorption was well represented by linear and Freundlich equations. Simple exponential equation was not able to represent degradation, thus a bi-exponential equation was used, and some model adjusting was needed. Average measured amounts of each herbicide were compared with amounts predicted by the multi-layered-soil AF model. The model was able to predict leaching amounts in the sandy soil, especially for diuron, however the model performance was not good in the clayey soil. Differences can be due to the model conceptual framework, assumptions and limitations, as well as to the input data set used. It is well known that differences can also be due to analytical limitations. It is noteworthy that dispersion, in addition to convection/advection, can be especially relevant in soil lysimeter scale, and preferential flow can be particularly important in highly structured Oxisols.