# ESCAPE(2008) and FOCUS (1997)

The results of ESCAPE are not in contraction to FOCUS (1997). FOCUS (1997) describes a simple analytical model to calculate dynamic (time dependent) PECsoil concentrations. However, FOCUS (1997) only considers SFO (= single first order)-kinetics whereas ESCAPE uses the same model but considers all kinetics recommended by FOCUS (2006/2014). In addition to SFO kinetics ESCAPE is able to directly handle hockey stick – kinetics (HS), FOMC- kinetics (first order multi compartment) and DFOP- kinetics (double first order in parallel). ESCAPE can also handle singular and multiple applications. It furthermore considers different soil depths and performs corrections of actual rates dependent on the current crop interception automatically.
If SFO is considered all applied substances should be calculated in line with FOCUS (1997).

Unfortunately, FOCUS (1997) does not mention how metabolites should be simulated. However, ESCAPE can simulate the fate of up to two metabolites based on the ratio of molar masses of transformation product and parent compound and the formation fraction. For the calculation of soil concentrations of metabolites ESCAPE does not simply assume instant formation of these transformation products but estimates the formation dependent on the actual time varying residues of the parent compound in soil.

ESCAPE was originally developed for the environmental protection agency in Germany (UBA, Umweltbundesamt) but it is currently used by various member states to calculate the fate of plant protection products in the EU according to FOCUS (1997).

References:

Klein, M. (2008): Calculation of PECsoil including Plateau Concentrations for Pesticides Dependent on FOCUS Degradation Kinetics. User Manual ESCAPE Version 2. Fraunhofer-Institut Molekularbiologie und Angewandte Ökologie 57392 Schmallenberg Available at <https://www.ime.fraunhofer.de/en/Media_Center/Calculation_models.html>

FOCUS (1997): Soil persistence models and EU registration The final report of the work of the Soil Modelling Work group of FOCUS (FOrum for the Co-ordination of pesticide fate models and their Use).

FOCUS (2006/2014): “Guidance Document on Estimating Persistence and Degradation Kinetics from Environmental Fate Studies on Pesticides in EU Registration” Report of the FOCUS Work Group on Degradation Kinetics, EC Document Reference Sanco/10058/2005 Version: 1.1 Date: 18 December 2014