

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. Unfortunately, FOCUS (1997) does not mention how metabolites should be simulated. However, this is especially important for the correct calculation of the transformation products of PERLKA (primary metabolite cyanamide and two secondary metabolites DCD and urea).

ESCAPE is able to simulate the fate of the parent compound (PERLKA) and following 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. Formation fraction are available for all transformation products.

Furthermore, 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).

It can be concluded that the results of ESCAPE can be considered as a higher tier option for PECsoil calculations compared to the simple assumption of instant formation for all transformation products according to FOCUS (1997).

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:

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- 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).
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