

A Comparison of Crop Interception values in FOCUS Ground Water and Surface Water Scenarios

Crop interception values are used in both FOCUS ground and surface water simulations to allow for the impact of the crop canopy on the amount of plant protection product (PPP) that reaches the soil. In the first assessment tier of the ground water simulations values for crop interception, for each range of growth stages, were conservatively selected from Ganzelmeier, 1997 ^(a), Becker *et al.*, 1999 ^(b) and Van de Zande *et al.* 1999 ^(c) and these remain unchanged in any higher-tier simulations ^(d). In the surface water simulations a tiered approach to interception was used from highly conservative at Step 1 (no interception), to conservative values at Step 2 ^(e) and realistic interception values at Step 3 and beyond ^(f).

The difference in approach meant that a comparison of crop interception values between the two approaches could only realistically take place between the full canopy values for ground water at the first tier and the full canopy values for surface water at Step 3; these interception values are consistent with more recently published values ^(g) that, in turn, are generally consistent with the earlier publications used for the ground water values for the full canopy ^(a, b, c). There are three main reasons for this:

1. The ground water interception values are considered to be a realistic representation of what happens in the field at the first tier of simulation. Realistic values were only used at Step 3 and above for the surface water simulations; hence, it is only at these tiers where a comparison can be made between the values used for interception in the ground and surface water simulations.
2. The interception values used at Step 2 of the surface water simulations were conservative in nature, *i.e.* they were lower than the realistic values used at Step 3 and more PPP reaches the soil; thus, these Step 2 values should not be compared with the realistic first tier ground water interception values used for the various growth stages.
3. The interception values used at Step 3 in the surface water simulations are internally set within the models; hence, the full canopy values, at the end of the growth period, are the only ones where a meaningful comparison can be made with the ground water values.

Conclusion

Thus, the interception values used in ground and surface water simulations have been standardized where possible, at the appropriate assessment tier, and the values used are consistent with published values for the full canopy. So there is currently no need for any further changes in crop interception values of FOCUS Ground Water or FOCUS Surface Water Scenarios.

FOCUS Version Control Workgroup, June, 2005.

References

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- b) Becker, F.A., Klein, A.W., Winkler, R., Jung, B., Bleiholder, H., Schmider, F., 1999, The degree of ground coverage by arable crops as a help in estimating the amount of spray solution intercepted by the plants, *Nachrichtenbl. Deut. Pflanzenschutzd.*, **51** (9), 237-242.
- c) Van de Zande, J.C., Porskamp, H.A.J., Holterman, H.J., 1999, Spray deposition in crop protection, *Environmental Planning Bureau Series No. 8*, IMAG-DLO, Wageningen.
- d) FOCUS, 2002, Generic guidance for FOCUS groundwater scenarios, Version 1.1, April 2002, Table 1.5 and 1.6 on page 23.
- e) FOCUS, 2001, FOCUS Surface Water Scenarios in the EU Evaluation Process under 41/414/EEC, Report of the FOCUS Working Group, EC document reference SANCO/4802/2001 rev. 2 final (May 2003), Table 2.4.2-1 on page 28.
- f) FOCUS, 2001, FOCUS Surface Water Scenarios in the EU Evaluation Process under 41/414/EEC, Report of the FOCUS Working Group, EC document reference SANCO/4802/2001 rev. 2 final (May 2003), Table 7.2.5-1 on page 195.
- g) Linders, J., Mensink, H., Stephenson, G., Wauchope, D. and Racke, K., 2002, Foliar interception and retention values after pesticide application: A proposal for standardized values for environmental risk assessment, *Pure Applied Chem.* **72** (11), 2199-2218.