



Daisy Newsletter no. 4

Now that the year is close to its end, we would like to wish you a

Merry Christmas and a Happy New Year

For 2016, the plan is to publish four newsletters, meaning that the spacing will change to 3 months.

Unfortunately we had to cancel the planned workshop. December seems to be a very busy time, and too many people were away on other business.

New homepage, what is happening?

It has been decided that Daisy homepage in the future will be hosted at the website of the Institute of Plant and Environmental Science, University of Copenhagen. We expect to have the most important pages up and running by 15th January, 2016. When it is ready, you will be able to find the link here:

http://plen.ku.dk/english/research/env_chem_phys/agrohydrology/

Recent projects where Daisy has been used

Pestpore

Over the last 25 years we have learned about the importance of macropores, and spent time on defining when water enters these pores. Much less time has been spent on figuring out what happens when the pores end. Usually we expect at least the biopores to end at 1.5 m or so, but recent findings in the project “Pestpore”, funded by the Danish Environmental Protection Agency indicate that it may be more complicated. Biopores were found down to 5-6 m below the surface, in reduced clay. However, the biopores consisted of two types, that is, biopores used by earthworms and roots down to about 3 m and fossile biopores below, possibly formed by tree roots. The whole system was connected.

Daisy was used for modelling of the experiment carried out (pesticide addition, collection in deeper layers), but also for scenario simulations, with different assumptions concerning the hydraulic conductivity of the soil matrix, whether pores extended all the way down to an aquifer or not, and whether sand lenses were present in the profile and cut the continuity of the pores. Only the scenario with pores all the way to the aquifer resulted in high

pesticide transport, and the transport appeared to be much more dependent on the occurrence of specific rainfall events than the yearly rainfall.

The report will be published in Danish, but with an English summary, and when articles are published, they will be mentioned here. The title is: Jørgensen, P.R., Krogh, P.H., Hansen, S., Petersen, C.T., Habekost-Nielsen, M., Rasmussen, S.B., Spliid, N.H. (2015): Dybe biopores forekomst og betydning for pesticidudvaskning i moræner. To be published by the Danish EPA in the series “Pesticidforskning fra Miljøstyrelsen”.

Crop parameterization studies

Two studies with new crop parameterisations (barley and maize) have been published (Pohanková et al and Manewski et al, below). We have asked the authors to be allowed to include the new crop descriptions in the Daisy library, and both have very kindly already supplied the information.

Recent articles and reports

Ghaley, B.B and Porter, JR. (2014): Ecosystem function and service quantification and valuation in a conventional winter wheat production system with DAISY model in Denmark. *Ecosystem Services* 10: 79–83.

Manewski, K., Børgesen, C.D., Andersen, M.N. and Kristensen, I.S. (2015): Reduced nitrogen leaching by intercropping maize with red fescue on sandy soils in North Europe: a combined field and modeling study. *Plant Soil* 388: 67-85.

Pohanková, E., Hlavinka, P., Takáč, J., Žalud, Z., and Trnka, M. (2015): Calibration and Validation of the Crop Growth Model DAISY for Spring Barley in the Czech Republic. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, 63(4): 1177–1186.
http://acta.mendelu.cz/media/pdf/actaun_2015063_041177.pdf