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Comment

Interactive comment on “Evolution of the spherical cavity radius generated around a subsurface drip emitter” by M. Gil et al.

M. Gil et al.

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Received and published: 11 May 2010

* The authors talk about horizontal cracks, could it be possible that they were horizontal due to the way the pots were filled?

Yes, in this case, the cracks were horizontal because the pots were filled with horizontal layers. Soils in the field have structure, thus cracks could not necessarily be horizontal.

* Table 1 shows a cavity area that, I understand, was obtained once the permanent flow was reached. From this area the authors calculated an equivalent r_0 . Is this the radius you mean when you talk about measured radius?

Yes, as the cavities were not spherical, an equivalent r_0 was calculated in order to compare the cavity sizes. Subsequently, when simulated values are compared to measured

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values, the equivalent r_0 is taken into account.

The authors appreciate this comment and will take this into account by making this clearer in the final version.

* Can they comment what will happen if the emitter depth is increased? Have they conducted already this experiment to see it?

In this case, due to the small pot size the emitter was at a shallow depth, however, in the field the emitter uses to be located deeper. The weight of soil above the emitter has an influence on the cavity size but, there is a depth at which the weight of soil is large enough that the cavity size remains constant.

Likewise, the cavity is caused by soil deformation due to the gradient pressure. The last depends on emitter pressure and water head pressure in the soil surrounding the emitter discharge point. This will depend on soil structure. So if the last does not change with depth I would not expect any difference on cavity radius with depth. On the other hand, soil in the pot does not have structure, so cavity radius will be influenced by soil depth up to a certain value.

There have been no experiments conducted at this time to determine this depth. However, the authors' hypothesis is that standard depths employed in actual field conditions are enough to assure a steady cavity size.

Interactive comment on Biogeosciences Discuss., 7, 1935, 2010.

BGD

7, C932–C933, 2010

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