Hydrol. Earth Syst. Sci. Discuss., 7, C288–C289, 2010
www.hydrol-earth-syst-sci-discuss.net/7/C288/2010/

Hydrology and Earth System Sciences Discussions

Interactive comment on "Flexural behaviour of selected plants under static load" *by* F. J. Sutili et al.

Anonymous Referee #3

Received and published: 26 March 2010

General comments The MS deals with a relevant issue in soil bioengineering techniques application: the biotechnical properties of vegetation for riverbank stabilisation. The idea to introduce the angle of flexibility in order to evaluate such properties is valuable. The structure of the MS, the elaboration of results and the discussion, however, must be improved. The Authors are invited to rethink the MS and to make major revision

Specific comments - The abstract doesn't give a proper idea of the contents of the paper, in particular there is no reference to the use of vegetation in riverbank and reference to the obtained results have to be expanded. - The introduction is too concise; it is not clear what is the focus of the paper. The issue of the relationship between mechanical properties of vegetation and the hydraulic roughness should be better articulated.

The same holds for the mechanical properties, which also need references. Few words on the role of plants on riverbank stability, finally, should complete the section. - The description of parameters should be more concise referencing to books of material science - Result and discussion are frequently mixed, my advice is to expose the results and then to discuss them in a separate section. - The Authors, implicitly, suggest the adoption of the angle of flexibility as an indicator of the aptitude of a species to be used in riverbank stabilisation works. The relationship between the angle of flexibility and the hydraulic resistance, however, is not discussed and any indication for acceptable values of such angle is provided. - Due to the variability of stem diameter respect to the plant age, the reliability of figure 8 is questionable. A sensitivity analysis could be useful to have an idea of the relevance of the issue. - In section 3.3 the message of the first sentence is not clear. Moreover, the authors don't consider that the rupture of the stems can create obstructions in river and also in agricultural canals. In Figure 4, the entire lines should be drawn. - The sentence at pg 1470 lns23-27 seems to be incomplete; what is the consequence of the statement? - statements at pg 1470 ln 28-pg 1471 ln 1, pg 1472 lns12-18 are quite obvious - pg 1472 lns 10-11: stem flexibility is not the only property relevant for riverbank stability - more than the half of reference are in German and/or difficult to find, the Authors should make an effort to provide more accessible references

Technical corrections - Pg 1461 Ln 15: practival? - Pg 1462 ln 14 and pg 1474 ln 23: Righetti instead of Rhigetti - Pg 1464 lns 1-19: the list of parameters should perhaps be better arranged into a notation section or into a table - Pg 1472 ln 2 fig. 8 instead of fig. 9?

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 7, 1459, 2010.