

Water Dynamics in Plant Production, 2nd Edition

Questions and Discussion Points

Chapter 4 – Properties and Energy State of Water

Section 4.1

1. Explain the 'bipolarity' of the water molecule.
2. Bipolarity or simply polarity of the water molecule causes some remarkable and specific characteristics of water as a liquid. Describe some of them.
3. Explain the phenomenon of capillarity in a glass tube.
4. Which fact is explained by the 'capillary rise equation'?

Section 4.2

1. Water flow in the soil is a general phenomenon and is caused by which criterion? The criterion is a quantity of intensity.
2. The Darcy equation (Eqn 4.4) combines a quantity of capacity with a quantity of intensity. Please evaluate this statement by citing the Darcy equation.
3. Explain the existence of the matric potential, Ψ , by use of the logical deduction indicated in Fig. 4.5 (right-hand side).
4. Explain the difference between z and Z .
5. We recognize four component potentials of the total water potential in the soil–plant system. What are they?