

Water Dynamics in Plant Production, 2nd Edition

Multiple Choice Questions

Chapter 8 – The Plant as a Link between Soil and Atmosphere: an Overview

1. Net radiation, R_N , at the soil surface is dissipated in **(a)** heating the air, **(b)** heating the soil, **(c)** evaporating water and **(d)** used in photosynthesis.
(i) Which of these (a, b, c or d) contributes to actual soil evaporation or evapotranspiration, at another location?
(ii) When actual evapotranspiration at a site exceeds the potential value because of the advection of energy, it is known as:
(a) the clothesline effect
(b) the oasis effect
(c) the albedo effect
(d) the van Bavel effect
2. Potential evapotranspiration is greater than potential evaporation because:
(a) the evaporative surface of a plant stand is distributed over different heights above a given area
(b) evaporation takes place more easily from a leaf surface than a soil surface
(c) evapotranspiration includes evaporation and transpiration
(d) all of the above
3. Which of the following factors are important in determining transpiration rate? (There may be more than one correct answer.)
(a) soil water potential
(b) soil hydraulic conductivity
(c) net radiation
(d) none of the above
4. From the statements below, select the unique characteristics associated with the resistance to water movement from the substomatal cavity to the outside of a leaf. (There may be more than one correct answer.)
(a) It is particularly large.
(b) It includes a variable resistance.
(c) It is the only resistance to water vapour in the soil–plant–atmosphere continuum.
(d) It comprises two resistances in parallel.
5. The equations developed by Penman and van Bavel for estimating potential evapotranspiration are known as combination equations because:
(a) They combine information from the incoming solar radiation and its redistribution into long-wave radiation.
(b) They 'lock in' evaporation and transpiration terms.
(c) They combine thermodynamic and aerodynamic equations to overcome the need to measure the temperature of the evaporating surface.