

Water Dynamics in Plant Production, 2nd Edition

Multiple Choice Questions

Chapter 9 – Water Use by Crops

1. The ratio of shoot dry weight to root dry weight can exceed 15:1. What value best describes the surface area of transpiring leaves relative to that of roots?
 - (a) 10:1
 - (b) 5:1
 - (c) 1:1
 - (d) 0.5:1
2. When atmospheric demand is met by the water removed in uptake by roots from the different layers of soil, which of the following statements best describes the pattern of extraction?
 - (a) The water uptake pattern follows the distribution of rooting density down the profile.
 - (b) Water absorbed from different soil layers depends on their water content.
 - (c) The water uptake follows rooting depth over time.
 - (d) The sum of the water adsorbed from different soil layers will be approximately equal to the potential evapotranspiration.
3. An important feature of most soils, other than in arid or semi-arid climates, is the presence of a plane of zero flux. Which of the following best describes this feature?
 - (a) A zone within the soil in which water ceases to drain further following rainfall or irrigation.
 - (b) An imaginary layer at the top of the capillary fringe, where water no longer moves upwards from the water table.
 - (c) A surface within the soil profile above which water is moving upwards due to evaporation and below which water is moving steadily downwards.
 - (d) None of the above.
4. Which of the following contains the full set of measures for determining the field water balance over a given period?
 - (a) solar radiation, soil water content and water potential profiles, rainfall, runoff, soil hydraulic conductivity as a function of soil water potential
 - (b) net solar radiation, soil water content and water potential profiles, rainfall, runoff, soil hydraulic conductivity
 - (c) net solar radiation, soil water content and water potential profiles, rainfall, soil hydraulic conductivity as a function of soil water potential
 - (d) net solar radiation, soil water content and water potential profiles, rainfall, runoff, soil hydraulic conductivity as a function of soil water potential
5. Which of the following can be problematic in obtaining values of potential evapotranspiration using lysimeters?
 - (a) the oasis effect
 - (b) determining small differences in soil water content for a large container filled with soil and growing a crop
 - (c) reproducing in a lysimeter the soil physical conditions found in the field
 - (d) all of the above