

Water Dynamics in Plant Production, 2nd Edition

Multiple Choice Questions

Chapter 15 – Climatic Factors Influencing Yield

1. Solar radiation at the equator shows only small changes over the year. During the summer months at higher latitudes the daily solar radiation is greater than at the equator.

This is because:

- (a) the value is particularly small at the equator at that time of year
- (b) humidity is greatest at the equator at that time of year
- (c) day length is shorter at the equator
- (d) all of the above
- (e) none of the above

2. Thermal time is an important concept that is helpful in understanding the development of plants in different climates. This is because:

- (a) it takes account of the variation in radiation between northern and southern hemispheres
- (b) it helps in cataloguing seed sources
- (c) for each phase of growth, plants require a given amount of heat, above a base value, to move on to the next
- (d) the warmer the climate the greater the growth in each stage

3. Which of the following factors can be ascribed to increased growth during the rainy season of a monsoon climate? (There may be more than one correct answer.)

- (a) cooler temperatures
- (b) increased soil water content
- (c) rainfall with less runoff
- (d) smaller vapour pressure deficit in the atmosphere
- (e) all of the above
- (f) none of the above

4. (i) Changes in concentration of which of the following gases in the atmosphere contribute to global climate change?

- (a) ozone (O_3)
- (b) methane (CH_4)
- (c) nitrous oxide (N_2O)
- (d) carbon dioxide (CO_2)
- (e) water vapour
- (f) all of the above
- (g) none of the above

(ii) Which one of the gases listed forms a layer in the stratosphere that creates a natural barrier to harmful ultraviolet radiation?

- (a) ozone (O_3)
- (b) methane (CH_4)
- (c) nitrous oxide (N_2O)
- (d) carbon dioxide (CO_2)
- (e) water vapour

5. The global mean temperature of the earth has shown only small changes for much of the period from the year 2000. Climate scientists attribute this to which of the following?

- (a) Global warming has become decoupled from the concentration of CO₂ and other gases in the atmosphere.
- (b) The change in CO₂ has been balanced by a decline in the concentration of other gases.
- (c) Considerable heating has taken place at depth in the oceans.
- (d) Sunspot activity has been considerably less than expected.