

Course no. - SSAC-242

Course title- Problematic soil and their management

1. Which fertilizer produces acidity in soil?

- (A) Ammonium sulphate (B) Sodium nitrate
(C) Calcium ammonium nitrate (D) Calcium nitrate

Ans. **a**

2. Which among the following salt is also called black alkali?

- a) Na_2CO_3 b) Na_2SO_4
c) NaCl d) NaOH

Ans. **a**

3. Solonchak soil is the other name for _____

- a) Alkali Soils b) Sodic Soils
c) Saline-alkali soils d) Saline soils

ans: **d**

4. Dolomitic limestone is favored over other liming materials when which essential nutrient element is in low supply?

- a) Calcium b) Potassium
c) Magnesium d) Sodium

ans. **c**

5. Aluminum is considered to be an acid cation because _____

- a) It can exchange with Ca^{2+} ions b) It hydrolyzes in water, releasing H^+ ions
c) It is toxic to plant roots c) all of the above

ans. **b**

6. Irrigation water can be moderately safe having RSC....

- a. $<1.25 \text{ meq L}^{-1}$ b. $> 2.5 \text{ meq L}^{-1}$
c. $1.25\text{-}2.5 \text{ meq L}^{-1}$ d. both a & c

Ans. **c**

7. Which type of soil acidity is measured by soil pH?

- a) Passive acidity
- b) Active acidity
- c) Total acidity
- d) Exchangeable acidity

Ans: **b**

8. Who proposed the term lime requirement?

- a) Schoonover
- b) Schofield
- c) Ramamoorthy
- d) Shoemaker *et al.*

Ans: **d**

9. For amelioration of which among the following soils is Gypsum used?

- a) Alkali soil
- b) Saline soil
- c) Acid soil
- d) Solanchalk soil

Ans: **a**

10. In terms of which among the following is salinity is measured?

- a) SAR
- b) pH
- c) ESP
- d) EC

Ans: **d**

11. The EC of saturated extract of the soil is $>4 \text{ dS m}^{-1}$, ESP < 15 and pH < 8.5 then this soil is__

- a) saline-sodic soil
- b) alkali soil
- c) saline soil
- d) sodic soil

ans. **c**

12. The process of breakdown of H-clay under alkaline condition is known as__

- a) solonisation
- b) salinization
- c) alkalization
- d) solodisation

ans. **d**

13. White crust on the soil surface is morphological character of ____ soil.

- a) saline non-sodic soil
- b) non saline alkaline soil
- c) sodic soil
- d) saline alkali soil

ans. **a**

14. SAR having range 10-18 have which class?

- a. High sodium hazard
- b. low sodium hazard
- c. medium sodium hazard
- d. very high sodium hazard

Ans. c

15. Which crop is not highly salt tolerant crop?

- a) Barley
- b) Soybean
- c) Cotton
- d) Rye

ans. b

16. What is sodium adsorption ratio range for high sodicity hazard?

- a. 10-18
- b. 0-10
- c. 18-26
- d. >26

Ans. c

17. Acidity develops due to hydrogen (H^+) and Aluminium (Al^{3+}) ion on the soil colloids known as__

- a) Reserve acidity
- b) Active acidity
- c) Residual acidity
- d) Total acidity

ans. a

18. White alkali soil mostly formed in_____

- a) Tropical region
- b) Humid and semi humid region
- c) Arid and semi arid region
- d) Subtropical region

ans. c

19. A soil having dominance of hydrogen (H^+) and aluminium (Al^{3+}) relative to hydroxyl (OH^-) ions is called as__

- a) Acid soil
- b) Saline alkali soil
- c) Acid sulphate soil
- d) Saline soil

ans. a

20. Bacteria function better in soils having ____

- a) Low pH
- b) High pH
- c) Moderate pH
- d) Moderate to high pH

Ans. d

21. What is the formula for Residual sodium carbonate?

- a. $RSC = (CO_3^{2-} - HCO_3^{-}) + (Ca^{2+} + Mg^{2+})$
- b. $RSC = (CO_3^{2-} - HCO_3^{-}) + (Ca^{2+} - Mg^{2+})$
- c. $RSC = (CO_3^{2-} + HCO_3^{-}) - (Ca^{2+} - Mg^{2+})$
- d. $RSC = (CO_3^{2-} + HCO_3^{-}) - (Ca^{2+} + Mg^{2+})$

Ans. **d**

22. Acid sulphate soil having pH____

- a) >4.5
- b) <4.5
- c) <4.0
- d) > 4.0

ans. **c**

23. Acid sulphate soil which contain oxidized iron sulphides____

- a) Normal acid sulphate soil
- b) Actual acid sulphate soil
- c) Potential acid sulphate soil
- d) Oxidized acid sulphate soil

ans. **b**

24. Hydrogen sulphide causes akiuchi disease in which crop?

- a) wheat
- b) Oat
- c) Barley
- d) Rice

ans. **d**

25. Land capability classes have:

- a. 3 categories
- b. 4 categories
- c. 5 categories
- d. 8 categories

Ans. **d**

26. Acidic soils can be characterized by _____

- a) Low pH
- b) High pH
- c) Texture
- d) Colour

Answer: **a**

27. Which of the following ions is not found excess in acidic soils?

- a) Al
- b) Fe
- c) Mg
- d) Cu

Answer: **c**

28. Which of the following is majorly found in acid sulphate soils?

- a) Pyrite
- b) Copper
- c) Aluminium
- d) Magnesium

Ans: a

29. A soil, which has pH is 8.5 to 10, ESP more than 15 and EC less than 4 dS m⁻¹ is called....

- a. Saline soil
- b. Alkali soil
- c. Saline alkali soil
- d. All of the above

Ans. b

30. Which of the following substance can be used for soil reclamation?

- a) Gypsum
- b) Citric acid
- c) Phosphoric acid
- d) Oxalic acid

Answer: a

31. Alkali soils are reclaimed by _____

- a) leaching of soil
- b) using limestone as a soil amendment
- c) using gypsum
- d) provision of drainage

Answer: c

32. If the electrical conductivity of the irrigation water ranges from 0.25 – 0.75 dS m⁻¹, then what is their suitability?

- a) No restriction on its use
- b) Can be used with moderate leaching
- c) unsuitable for irrigation
- d) Can't used due to restricted drainage

Answer: b

33. Salinity class of irrigation water which having EC 0.75-2.25 dS m⁻¹....

- a. Low salinity
- b. High salinity
- c. Very high salinity
- d. Medium salinity

Ans. b

34. What is Solonetz soil?

- a) White alkali soil
- b) Black alkali soil
- c) Highly saline soil
- d) Non-saline soil

Answer: b

35. A large amount of soil can move with the run off called _____

- a) Soil erosion
- b) Soil conservation
- c) Soil pollution
- d) Soil moving

Answer: a

36. Sensitive crop having.....ppm boron concentration for safe use of irrigation water.

- a. <0.33 ppm
- b. <0.35 ppm
- c. <0.23 ppm
- d. < 0.38 ppm

Ans. a

37. Phosphorus uptake in alkali soil in the form of _____

- a) $\text{H}_2\text{PO}_4^{4-}$
- b) HPO_4^{2-}
- c) PO_4^{3-}
- d) H_3PO_4

Ans. c

38. Kari is the local name of _____

- a) Acid soil
- b) Saline soil
- c) Acid sulfate soil
- d) Alkali soil

Ans. c

39. A soil which has pH less than 8.5, ESP less than 15 and EC more than 4 mmhos/cm is called-

- a. Saline soil
- b. Alkaline soil
- c. Saline-alkali soil
- d. None of these

Ans. a

40. In alkali soils, phosphorous is fixed as:

- a. Iron and Aluminum phosphate
- b. Calcium phosphate
- c. Fluorapatite
- d. Hydroxyapatite

Ans. b

41. Salinity class of irrigation water which is not suitable for irrigation....

- a. C_1
- b. C_3
- c. C_4
- d. C_2

Ans. c

42. Absorbed hydrogen and aluminium are largely responsible for:

- a. Soil acidity
- b. Soil alkalinity
- c. Neutrality
- d. None of the above

Ans. a

43. According to land capability classification, the soils, which are not suitable for crop cultivation, belong to:

- a. Class I
- b. Class III
- c. Class IV
- d. Class VIII

Ans. **d**

44. Acid soils can be reclaimed by:

- a. CaCO_3
- b. H_2SO_4
- c. $\text{Ca SO}_4 \cdot 2\text{H}_2\text{O}$
- d. HNO_3

Ans. **a**

45. What is mean by C_2S_3 class?

- a. Medium salinity & High sodium hazard
- b. High salinity & low sodium hazard
- c. Very high salinity & medium sodium hazard
- d. Low salinity & very high sodium hazard

Ans. **a**

46. Zinc deficiency occurs in:

- a. light soil
- b. Calcareous soils
- c. Soils low in phosphorous
- d. Soil having pH 7.5

Ans. **b**

47. Ammonia lost through volatilization in significant quantities from:

- a. Alkaline soils
- b. Acidic soils
- c. Saline soils
- d. None of these

Ans. **b**

48. Barley, date palm and cotton are _____ salt tolerant:

- a. High
- b. Low
- c. Medium
- d. None of these

Ans. **a**

49. Sodicty hazard evaluated by...

- a. Exchangeable sodium percentage
- b. Sodium adsorption ratio
- c. Soluble sodium percentage
- d. Residual sodium carbonate

Ans. **b**

50. Continuous heavy rainfall leads to the formation of:

- | | |
|----------------|----------------------|
| a. Saline soil | b. Sodic soil |
| c. Acid soil | d. Saline-sodic soil |

Ans. c

51. land capability unit described on the basis of...

- | | |
|-------------------------------|------------------------------------|
| a. Properties of land | B. Management practices to be used |
| c. Hazard/Limitations of land | d. Colour of land |

ans. b

52. Degree of soil salinity is indicated by its:

- | | |
|-------------------------------|----------------------------|
| a. Total soluble salt content | b. Organic matter content |
| c. Nitrogen content | d. exchangeable Na content |

Ans. a

53. Which heavy metal content in water is responsible for Minamata disease?

- | | |
|-------------|-------------|
| a. cadmium | b. fluoride |
| c. chromium | d. mercury |

ans. d

54. NO₃ is present in excess amount in drinking water causes...

- | | |
|------------------------------|------------------------|
| a. Minamata disease | b. Anaemia |
| c. Methamoglobinemia disease | d. temporary blindness |

Ans. c

55. Cream, soap, paint & wax are the sources of which water pollutant?

- | | |
|-------------------|------------------------------|
| a. Aldrin | b. Polychlorinated biphenyls |
| c. Vinyl chloride | d. DDT |

Ans. b

56. For managing acid soils following chemical amendment is quite essential:

- | | |
|----------------------|--|
| a. ZnSO ₄ | b. CuO |
| c. CaO | d. CaSO ₄ . 2H ₂ O |

Ans. c

57. Lime requirement determined by which method?

- | | |
|----------------------|--------------------------|
| a. SMP buffer method | b. Compleximetric method |
| b. volumetric method | d. Gravimetric method |

Ans. a

58. In acid soils, phosphorous is fixed as:

- | | |
|--------------------------------|----------------------|
| a. Iron and Aluminum phosphate | b. Calcium phosphate |
| c. Fluroapatite | d. Hydoxyapatite |

Ans. a

59. Land capability subclasses described on the basis of...

- | | |
|-------------------------------|------------------------------------|
| a. Properties of land | B. Management practices to be used |
| c. Hazard/Limitations of land | d. Colour of land |

ans. c

60. Salinity class of irrigation water which is suitable after leaching....

- | | |
|--|-------------------------------------|
| a. C ₁ - Low salinity | b. C ₃ - High salinity |
| c. C ₄ - Very high salinity | d. C ₂ - Medium salinity |

Ans. d

61. Irrigation water can be unsafe having RSC....

- | | |
|---------------------------------|------------------------------|
| a. <1.25 meq L ⁻¹ | b. > 2.5 meq L ⁻¹ |
| c. 1.25-2.5 meq L ⁻¹ | d. both a & c |

Ans. b

62. Soil having 5-15 CaCO₃ % known as...

- | | |
|---------------------------|-----------------------------|
| a. Highly calcareous soil | b. Slightly calcareous soil |
| c. Non calcareous soil | d. Moderate calcareous soil |

Ans. d

63. Acid rain results when.....gases are emitted.

- | | |
|-------------------------------------|-------------------------------------|
| a. Carbon dioxide | b. Nitrogen dioxide & sulphur oxide |
| c. Sulphur dioxide & nitrogen oxide | d. All of above |

Ans. c

64. Base unsaturated soil means...

- | | |
|----------------|------------------|
| a. Alkali soil | b. Acid soil |
| c. Saline soil | d. Degraded soil |

Ans. b