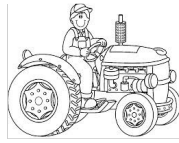


## Chapter 9: Soil and Agriculture



### Terms to know:

Agriculture	Leaching
No-till farming	Porosity
Cropland	Cation exchange capacity
Rangeland	Depositor
Soil	Crop rotation
Monoculture	Contour farming
Polyculture	Terracing
Green Revolution	Intercropping
Chemical weathering	Shelterbelts
Biological weathering	Reduced tillage
Physical weathering	Irrigation
Soil horizons	Salinization
Clay	Desertification
Silt	Deforestation
Sand	Dust Bowl
Loam	

### No-Till Agriculture in Southern Brazil

1. What sorts of practices do Brazilian farmers practice to conserve soil conditions?
2. Why do no-till methods benefit farmers?
3. What has been reduced by this method?

### Soil: The Foundation for Agriculture

4. Why should we care about our soils?
5. How did agricultural practices begin?
6. What did the ability to grow excess farm produce enable people to do?
7. What does it mean to speak in terms of traditional agriculture?
8. How is industrialized agriculture different from traditional?
9. What is monoculture?

10. Polyculture?

11. What was the green revolution?

### **Soil as a System**

12. What does soil consist of by volume?

13. What is the organic matter?

14. Is soil alive?

15. How does soil composition influence a regions ecosystem?

16. What is the parent material of soil?

17. What is bedrock?

18. What happens during physical weathering?

19. Chemical weathering?

20. Biological weathering?

21. What is erosion?

22. What is the horizon of a soil?

23. What is the soil profile?

24. Make sure you know Figure 9.7. Describe what is found in each of the horizons:

O horizon -

A horizon -

E horizon -

B horizon -

C horizon -

R horizon -

25. What is topsoil mostly composed of?

26. If you are going to grow crops would you want deep topsoil? Why?

27. What happens in leaching?

28. What does soil type have to do with leaching and minerals?

29. What does each indicate:

Soil color -

Soil texture -

Soil structure -

Soil pH -

30. What are the particle sizes of the different soils? Clay? Silt? Sand?

31. What is soil porosity referring to and would you want to have more or less of this?

32. What soils would provide poor porosity?

33. What soils would provide too much porosity?

34. Go back to chemistry and recall what cations are. What is cation exchange?

35. Cation exchange capacity?

36. Which soils have the greatest cation exchange capacity? The least?
37. Are rainforest soils good soils for agricultural practices? Explain.
38. Are temperate grasslands good soils for agricultural practices? Explain.
39. What are the main differences in these two regions that account for this?
40. How does temperature influence the topsoil? Rainfall?

### **Soil Degradation and Soil Conservation**

41. What is the most desirable soil for agriculture?
42. What is deposition?
43. What is the benefit of flooding for farm productivity?
44. What does erosion remove?
45. What three practices have increased erosion on cultivated lands?
46. What types of plant communities protect against erosion? Why?
47. What happens when plant cover is removed?
48. What does the term desertification refer to?
49. How does this occur?
50. What role does rainfall in the process of desertification in arid and semiarid areas?
51. What is most degradation resulting from?

52. How does overgrazing impact desertification?
53. Summarize what happened between 1879 and 1929 in the southern Great Plains.
54. What was the Soil Conservation Act of 1935 addressing?
55. What are conservation districts?
56. How do the following help soil conservation:
- Crop rotation -
  - Contour farming -
  - Terracing -
  - Intercropping -
  - Shelterbelts -
  - Reduced tillage -
57. What do critics of no-till and reduced-tillage farming say against these farming techniques when it comes to the environment?
58. What has China done to slow its soil losses?
59. Why is this method good? Why is it not producing the same forests?
60. How does irrigation impact soils?
61. What happens when soils are waterlogged?
62. What creates salinization problems?

63. How does salinization impact crop growth?
64. What are 3 of the best ways to prevent salinization?
65. What percentage of the water applied during irrigation is actually used by plants?
66. What are several ways in which salinization can be corrected?
67. What are the 3 main elements plants require for proper growth?
68. These nutrients are removed from the soil how?
69. What are inorganic fertilizers?
70. What are organic fertilizers?
71. What is compost?
72. What are the benefits to the soil of using organic fertilizers?
73. What impacts does overgrazing have on soils?
74. What is the Conservation Reserve Program?