

- ΔExamples of organic fertilizer:** Animal manure- from cattle, horses, poultry, high transportation costs
Green manure- fresh or growing vegetables plowed into soil to increase humus for next crop
Compost- made by alternating layers of green and brown waste and stirring
Crop rotation- plant dif. Crops in different years, increases soil fertility, reduces erosion and reduces pests
- 3 types of soil:** Molli soils
Aridi soil
Pedalfer soil
- Accelerated soil erosion:** Created by too much farming, ranching, and clear cutting land
- Acidic soils do not take up nitrogen(below 5.5)- add lime:** ...
- Advantages of inorganic fertalizer:** Easily stored, transported and applied
- Agricultural techniques that lead to soil erosion:** Monoculture, row cropping, overgrazing, improper plowing of the soil, and removing crop wastes instead of plowing the organic material back into the soil.
- Basic soils (above 7.5) in west and SW USA do not take up phosphorous so sulfur is added:** ...
- B horizon:** Sub soil, most of the soils mineral matter
- Buttes-eroded mesas:** Weathered down to small, narrow topped formations
- Causes of soil erosion:** Caused by flowing water, wind, and human activity such as cultivation
- C horizon:** Mostly parent rock- lies above the unweathered bedrock
- Clay:** Very fine particles- feel sticky- good holding capacity, only soil that has a negative charge so it is able to hold onto soil nutrients, low permeability to water, therefore upper layers become water logged
- Constant erosion:** Reduces soil fertility by eroding away the A horizon. The B horizon isn't as fertile
- Creep:** Extremely slow down hill movement of weathered rock. Most effective of all movements usually goes unnoticed
- Dark brown/ black soil:** High in nitrogen
- Desertification:** A complex process of natural and human related activities that causes varying rates in different climates
- Disadvantages of inorganic fertilizer:** Does not add humus - allows for more soil components, and decreased water holding capacity and lowers soil oxygen
Need large amounts of energy to produce
Release green house gas nitrous oxide
Causes water pollution with runoff
- Ecological effects of erosion:** Loss of soil organic matter and plant nutrients
Reduce ability to store water
Increase use of costly fertilizer to maintain soil fertility
Increase water runoff on eroded mountain slopes
Increased buildup of soil sediment in waterways and coastal areas
Increased input of sediment into reservoirs that shortens their life
- Effects of salinization:** Stunts crop growth
Lowers crop yields
Kills plants and ruins land
Most severe cases are in Asia (china and india)
- Effects of soil erosion:** Destroys the soil profile, decreases the water holding capacity of the soil, and increases soil compaction
- E horizon:** Zone of leaching
- Global soil erosion:** Topsoil is eroding faster than it forms on about 38% of cropland
17% of worlds land was degraded by soil erosion (2/3rds in asia and africa)
Northwest china, over plowing and overgrazing is causing massive wind erosion of topsoil
40% of the worlds land in central us used for agriculture is degraded by erosion, salt buildup(salinization) and water logging
- Gravel:** Large particles
- Gray/ yellow soil:** Low in nitrogen, too wet/ not enough oxygen
- A horizon:** Topsoil layer- humus- mixture of organic and inorganic matter
Most of the roots and micro organisms reside here
- How to maintain and restore soil fertility:** Aerate soil
-improves ability to retain water and nutrients
-prevents erosion
- How to prevent soil erosion:** Landscape areas with natural wildflowers and vegetation
Set up a compost bin
Use paved walkways and provided trails
- In a areas of low precipitation, erosion leads to significant droughts:** ...
- Infiltration:** Downward movement of water through soil
- Inorganic fertelizer:** Combine nitrogen, phosphate and potassium
Helped to increase food production since 1950
Without them food production would decrease 40%
- Landforms:** Through weathering and erosion the earths physical features are formed
- Landslide:** Rapid rock movement sliding down the side of a hill, mountain, cliff
- Layer in soil are called:** Horizons

34. **Leaching:** Water moves down and carries nutrients to lower layers
35. **Loams/ loom:** Soils with equal amounts of clay, sand, silt and humus
Have a crumbly spongy feeling with particles loosely held together
Good for crops can be figured out using a soil texture pyramid
Rich in nutrients
Holds water but does not get waterlogged
36. **Mass movements:** Movement of fragments down a slope (either rapid or slow)
As the rocks collect at the bottom of the slope a TALUS, or rock pile is formed
37. **Mesas- smaller:** Table like areas
38. **Monadnocks:** Some portions of the mountain erode more slowly forming knobs called ↑
39. **Most of the worlds crops are grown on grasslands and cleared deciduous forest. In the midwest.: ...**
40. **Mudflow:** Rapid movement of mud
41. **O horizon:** Decaying leaves, waste, fungi, brown or black
42. **Only attractive eggs become chicken royalty: ...**
43. **Organic fertilizer:** Adds 20 other nutrients to soil
44. **Peneplain:** When a mountain is mature and eroded almost to sea level "almost flat"
45. **Plain-flat landform:** Not high above sea level
46. **Plateau- broad:** Flat landform with high elevation so subject to lots of erosion
47. **Rapid rock movement- rockfall:** Rapid rock movement from a steep cliff
Most rapid type of movement
48. **Red soil:** High in iron oxide
49. **R horizon:** Bedrock, also called regolith
50. **Salinization:** Irrigation water not absorbed into the soil evaporated, leaving dissolved salts (sodium chloride) topsoil
51. **Sand:** Medium particles- feels gritty- good infiltration and aeration. Good for crops and plants requiring low amounts of water
52. **Sandy soils have a lot of leaching: ...**
53. **Sheet erosion:** Parallel layers of topsoil stripped away
54. **Silt:** Fine particles- feels smooth
Easily transported by water
55. **Slow rock movement- solifluction:** "Soil flow" occurs in arctic and mountain climates where soil is permanently frozen and the top layer temporarily thaws in the warm season
56. **Slump:** Block of soil/ rock moves downhill due to gravity and in one piece
57. **Soil:** Complex mixture of eroded rock, minerals, decaying organic matter, water, air, and billions of living organisms
58. **Soil conservation- Alley cropping or agroforestry:** Plant crops with trees that provide fuel or fruit
59. **Soil conservation - conservation tillage:** Minimum tillage or no till farming- soil very little disturbed
Reduces soil erosion, fuel cost, prevents compaction, allows multiple crops
Used to plow in fall and leave until spring causing major erosion.
60. **Soil conservation- Contour farming:** Planting crops in rows across instead of with the sloped contour of the land
61. **Soil conservation- gully reclamation:** Reseed, dam up and fill with silt, re-vegetate, redirect water
62. **Soil conservation- PAM:** Polyacrylamide applied to soil bind to the clay particles and can prevent erosion
63. **Soil conservation- Strip contouring:** Alternate crops in rows- rows of corn with grass- provides nitrogen and prevents erosion
Reduces erosion and increases soil fertility
64. **Soil conservation- terracing:** Steep slopes become walled and flattened out- prevents erosion on steep surfaces- mountainous area such as Himalayas and Andes
Retains water and prevents erosion
65. **Soil conservation- windbreaks or shelter belts:** Rows of trees that break up winds on plains
66. **Soil erosion:** Movement of weathered rock or soil components from one place to another
67. **Soil erosion causes damage to:** Agriculture, waterways (canals), and dams. It interferes with wetland ecosystems, reproductive cycles (as in salmon), oxygen capacity, and pH of water
68. **Soil erosion in the US:** 1/3rd of nations original prime topsoil has been washed or blown into streams, lakes and oceans, mostly as a result of over cultivation, grazing and deforestation
Soil is eroded about 16 times faster than it can form
Between 1985 and 1997 soil erosion in US decreased by 40% due to soil conservation efforts
69. **Soil permeability:** The rate at which water moves through a type of soil
70. **Soil pH:** 1 acid and 14 basic- influences uptake of nutrients
71. **Soil porosity:** A measure of the volume of the pores or spaces of the soil
72. **Soils differ with different ecosystems: ...**
73. **Soil structure:** How soil is organized and clumped together
74. **Soil texture:** Amounts of the different sizes and types of minerals
75. **Waterlogging:** Farmers apply large amounts of water to leach salts deeper into the soil. Without adequate drainage water accumulates and raises water table.
1/10th of irrigated land suffers from water logging
76. **Ways to reduce desertification:** Reduce overgrazing, deforestation and destructive forms of planting, irrigation and mining
Plant trees and grass

77. **Weathering:** Physical- cracks or physical changes
Chemical- a whole new product