


# Survive the five! Soil, Agriculture, Pesticides Energy

1

Which soil horizon is topsoil?

- A



2

What is decomposed organic matter called in soil?



3

What is the name for the rock below the soil?

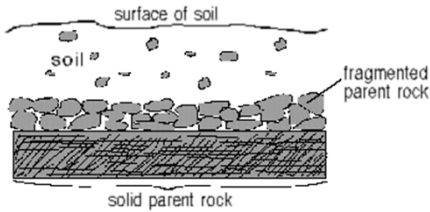
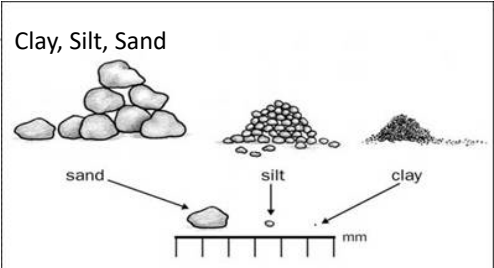


Figure 12-A: PARENT ROCK - Abiotic Source of Soil

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What are the three main sizes of soil particles in order from smallest to largest.


- Clay, Silt, Sand



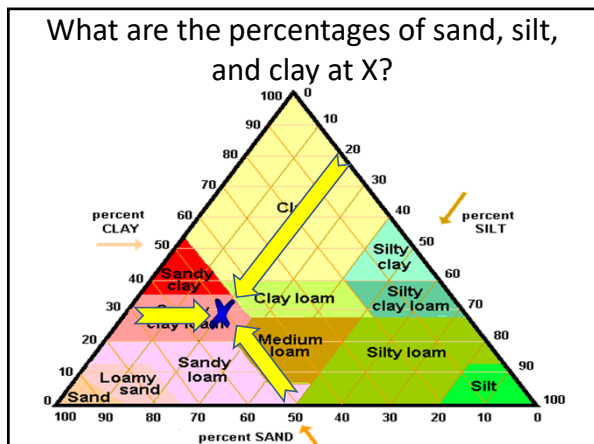
5

If you wanted a well drained soil which soil particle would you add to your soil?

- Sand



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What are two benefits of genetically modified organisms?

- Resist cold
- Produce their own pesticides
- Grow faster
- Resist herbicides

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What are two concerns with GMO's?

- Breeding Superweeds (GMO's breeding with wild plants)
- Seeds growing in unwanted places (like an organic farmers field).
- Consumer Distrust

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What are two negatives of aquaculture?

- Add antibiotics to reduce risk of disease.
- Need high calorie fish food to feed fish (Net energy loser)
- Predators can get stuck in nets trying to eat fish.
- Fish waste creates a problem

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What are two benefits from organophosphates and carbamates?

- They are less persistent
- They do not bioaccumulate or biomagnify

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I just sprayed an herbicide on my garden and everything died... I mistakenly used a

- Broad spectrum herbicide instead of a narrow spectrum herbicide.

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### What is the pesticide treadmill?.

- Farmer uses pesticide and it works great.
- Farmer uses again and it doesn't work as well.
- Pests breed resistance.
- More pesticides are needed and/or a new pesticide is needed.

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### Give an example of biological control of pests?

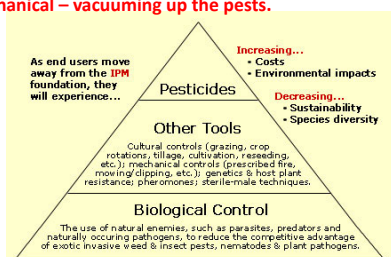
- Ladybugs eating aphids
- Cane toads eating cane grub (well... they didn't actually eat it)



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### Explain how you could use Integrated Pest Management to control mites in a strawberry field.

- **Biological** - Bring in a predatory species (predatory mites)
- **Chemical** - Spray small amounts of miticide (insecticide)
- **Cultural controls** – keeping down the dust
- **Mechanical** – vacuuming up the pests.



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### What is subsistence farming?

- Growing enough food to feed your family and maybe sell a little to make money.

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### What were two components of the first green revolution?

- High Yield Varieties
- Inorganic Fertilizer Use
- Pesticide Use

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### What are two components of the second green revolution?

- Happened in developing countries
- Focused on tropical and subtropical areas
- Focused on Rice and Wheat (High yield varieties)

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### Explain Waterlogging

- A crop is overwatered.
- The water table moves up and covers the roots.
- The roots become immersed in water and the plant cannot function properly.

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### What is alley cropping?

- Crops planted in between rows of trees.

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### What is contour plowing?

- Plowing perpendicular to the slope of a hill to reduce soil erosion.

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### What are two causes of soil erosion?

- Moving water (this is the major cause)
- Wind

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### What is strip cropping

- Planting rows of different crops in strips next to each other.

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### Terracing?

- On a steep hill cutting in flat areas for growing crops.

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How could broad spectrum pesticides actually increase pests

- By killing off beneficial predators of pests and creating the chance for resistance to develop.

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What is a potential pit fall of biological control?

- Control agent may negatively effect other species

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What is the biggest cause of soil erosion world wide?

- Moving water

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What practice(s) is most responsible for desertification?

- Overgrazing
- Soil compaction
- Irrigation
- Surface mining

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Why is animal manure normally not used as crop fertilizer?

- It's slow to release nutrients

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What kind of soil is most likely to get water logged?

- clay

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### Atrazine and paraquat are

- Contact herbicides

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### Define Power

- Work done per second

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The application of force over distance  
is?

- work

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What is the current state of our world  
coal supplies?

- Wide spread and extensive

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What is the main pollutant released by  
burning coal?

- Sulfur dioxide

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What is the most rapidly growing  
energy source?

- Natural gas

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**Energy**

**Contrast Renewable and Nonrenewable energy sources**

- Renewable – can be naturally replenished within a human lifetime.
- Nonrenewable – cannot be naturally replenished within a human lifetime.

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**Energy**

**List 2 Pros and 2 Cons of Wind**

- Pro-
  - No GHG emissions
  - Multiple use of land (etc. can graze cattle beneath)
- Con-
  - Kills Birds
  - Habitat Fragmentation
  - Noise

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**Energy**

**List 2 Pros and 2 Cons of Solar**

- Pro-
  - No greenhouse gas emissions
  - Renewable
- Con-
  - Expensive
  - Only works when its sunny
  - Requires lots of land area

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**Energy**

**List 2 Pros and 2 Cons of Geothermal**

- Pro-
  - Limited greenhouse gas emissions
  - High/Moderate net energy
- Con-
  - Limited areas with geologic conditions necessary.
  - Noisy

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**Energy**

**List 2 Pros and 2 Cons of Coal**

- Pro-
  - High Net energy
  - Large deposit of Coal in the USA
- Con-
  - GHG emissions
  - Acid Mine Drainage
  - Health Issues for Miners
  - Needs to be transported to power plant.

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**Energy**

**List 2 Pros and 2 Cons of Oil**

- Pro-
  - High Net energy
  - Used for lots of different applications
- Con-
  - Possibilities of oil spills
  - Greenhouse Gas production

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**Energy**

**Contrast Passive Solar and Active Solar.**

- Passive Solar is designing the house to shade the windows during the summer and allow in sunlight during the winter.
- Active solar uses a pump (needing electricity) to move water heated from a solar collector on the roof within the house to add heat.

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**Energy**

**List 2 Pros and 2 Cons of Nuclear**

- Pro-
  - No GHG emissions
  - Long lifetime of power plant.
- Con-
  - Radioactivity Leak possibility
  - What to do with the waste?

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**Energy**

**Contrast Solar Thermal with Solar Photovoltaic.**

- Solar Thermal – using the sun to heat water
- Solar Photovoltaic – turns sunlight directly into electricity

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**Energy**

**Give 2 pros and 2 cons of electric vehicles**

- Pro –
  - No harmful emissions
  - Uses no fossil fuels.
- Con –
  - Limited Range
  - The electricity is most likely produced from a power plant that runs off of coal, natural gas, or oil.

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**Energy**

**List 2 Pros and 2 Cons of Natural Gas**

- Pro-
  - Moderate/High Net energy
  - Low GHG emissions
- Con-
  - Possibilities leaks/explosion.
  - Pipelines to transport it can cause habitat destruction.

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**Energy**

**Give 2 pros and 2 cons of electric vehicles**

- Pro –
  - No harmful emissions
  - Uses no fossil fuels.
- Con –
  - Limited Range
  - The electricity is most likely produced from a power plant that runs off of coal, natural gas, or oil.

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**Energy**

**List 2 Pros  
and 2 Cons of  
Biomass**

- Pro-
  - Uses waste products (corn husks, organic garbage)
  - Potentially renewable (wood)
- Con-
  - Can cause habitat destruction (more farms for corn, switchgrass, etc)
  - Potentially nonrenewable.

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**Energy**

**List 2 Pros  
and 2 Cons of  
Hydroelectric**

- Pro-
  - No greenhouse gas emissions
  - Renewable
  - High net energy
- Con-
  - Expensive
  - Floods areas upstream
  - Buildup of sediment in reservoir behind dam.

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