Sustainable Agricultural Practices
Sustainable agriculture looks to avoid:

- Too much tillage
- Bare ground (erosion)
- Reliance on soluble, inorganic fertilizers without concurrent composts
- Reliance on hormones/antibiotics for livestock
Sustainable agriculture: preventing erosion

- Soil conservation strategies to prevent erosion:
  - Contour plowing
  - Windbreaks
  - Perennial crops
  - Cover crops
  - Terracing
  - No-till (conservation tillage)
  - Rotational grazing
Sustainable agriculture: preventing erosion

Contour Plowing

- Plowing around hill instead of up-down hill
- Method of plowing that follows the curves of the land rather than straight up and down slopes
Sustainable agriculture: preventing erosion

Windbreaks

- A windbreak is a planting usually made up of one or more rows of trees or shrubs planted in such a manner as to provide shelter from the wind and to protect soil from erosion.
Sustainable agriculture: preventing erosion

- Perennial crops are crops which are alive year-round and are harvested multiple times before dying.
- Opposite of “annual” crops

Perennial Crops
Sustainable agriculture: preventing erosion

- cover crops are plants that are planted to cover the soil rather than for the purpose of being harvested.
Sustainable agriculture: preventing erosion

- A terrace is a piece of sloped land that has been cut into a series of flat surfaces, which resemble steps.

Terracing
Sustainable agriculture: preventing erosion

- A type of conservation tillage in which crops are planted without disturbing the soil
- Crop residues are left in the field between seasons (green manure)

No-Till
No-Till Farming

Sustainable agriculture: preventing erosion

- Rotational grazing is the practice of moving grazing livestock between pastures on a regular basis.
Sustainable agriculture: increasing soil fertility

To increase soil fertility:
- Crop rotation
- Green manure
- Limestone
Sustainable agriculture: increasing soil fertility

Crop Rotation

• Crop species in a field are rotated from season to season
Sustainable agriculture: increasing soil fertility

Green Manure:
• Green manure is the decomposed cover a crop which was meant to be incorporated into the soil to increase its fertility; typically plowed under
Sustainable agriculture: increasing soil fertility

Limestone:
• Limestone is primarily composed of calcium carbonate
• Added to fields to reduce soil pH
Forestry: Clearcutting

• **Pros:**
  • Economically advantageous
  • Efficient

• **Cons:**
  • Soil erosion
  • Increased soil temperatures
  • Increased stream temperatures
  • Cutting stops C sequestration (climate change)
Sustainable Forestry

• To mitigate deforestation:
  • reforestation
  • using/buying from ecologically sustainable forestry techniques
  • reusing wood
• Using IPM strategies
• Using prescribed burns (promotes certain trees and reduces the fuel for future burns)
Chipotle - Scarecrow

https://youtu.be/DY-GgzZKxUQ
Chipotle - Back to the Start

https://youtu.be/S1zXGWK_knQ
Aquaculture

- Farming aquatic organisms such as fish, shellfish, and seaweed
- **Pros:**
  - Highly efficient
  - Requires only small area of water
  - Requires little fuel
  - Reduces use of fisheries
- **Cons:**
  - Pollution from wastewater (feces, uneaten food, antibiotics, bacteria/diseases)
  - Escaped fish can compete/breed with natives
  - Density-dependent disease risk (may require antibiotics)
World in a Cotton T-Shirt

https://www.youtube.com/watch?v=r2Zod7Sd3rQ&list=PLp-wXwmbv3z8aAJrhyttiqPMiKyoWVJym