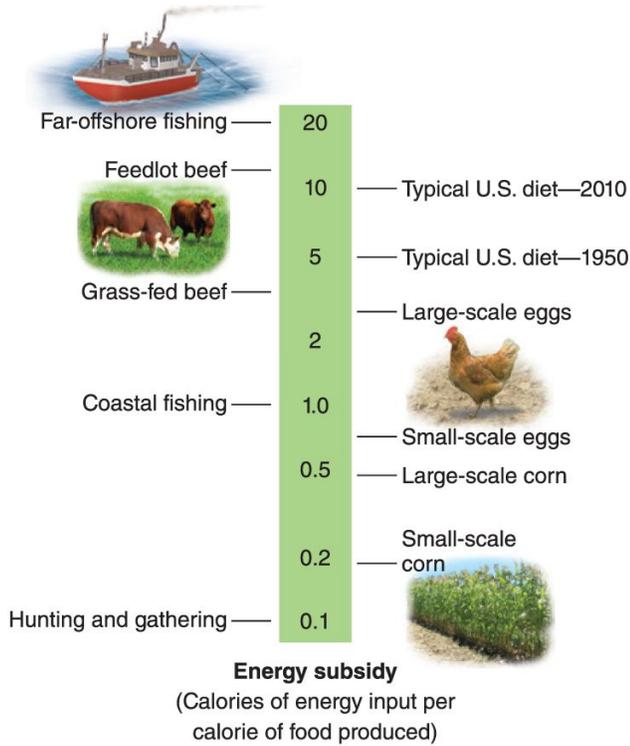


AGRICULTURE

- Agriculture began when hunter-gatherers brought wild fruits, grains, and nuts back to their camps. Then people realized that they could control what they grew.
- Agriculture led to more permanent settlements, often times near water sources.
- Agriculture ultimately brought us the civilization we know today.
- The Industrial Revolution introduced large-scale mechanization and fossil-fuel engines to agriculture just as it did to industry
- Industrial Agriculture is practiced on more than 25% of the world's croplands and on most of the croplands in the United States
- Industrial Agriculture requires that large areas be planted with a single crop (monoculture)
- Monocultures reduce biodiversity over large areas because far fewer wild organisms are able to live in monocultures than in their native habitats or in more diverse plantings
- Monocultures are vulnerable to diseases and pests because they are genetically similar.
- people must consume 2,200 calories of food per day to live an active healthy life
- **Three Main Crops**
 - Corn
 - Rice
 - Wheat
- **Types of Agriculture**
 - Industrial agriculture
 - Provides most of the world's food
 - Uses heavy equipment and fertilizers/ pesticides
 - High-yield monocultures
 - Plantation agriculture
 - Used in developing countries
 - Grow cash crops (coffee, sugar)
 - Slash and Burn Agriculture
 - Cutting down and burning tropical forests to clear land for crops and cattle
 - Farming in nutrient poor tropical soil leads to slash and burn
- **Impact of Agriculture**
 - Habitat Destruction
 - Eutrophication
 - Nutrient Depletion
 - Erosion
 - Excess costs
- **Irrigation**
 - Brings water to crops
 - Uses about 60% of the world's freshwater supplies

- **The Dust Bowl**
 - Period of severe dust storms that damaged the ecology and agriculture of the American and Canadian praries during the 1930's
- **The Green Revolution**
 - In the mid-late 1900's, the desire for more and better food for the world's growing population led to the green revolution
 - Agricultural scientists introduced new technology, crop varieties and farming practices to the developing world
 - New strain of crops
 - New methods of industrial agriculture
 - Developing nations began applying large amounts of synthetic fertilizers and chemical pesticides on their fields.
 - Intensive agriculture like this saved developing countrys like India and Pakistan from starvation in the 1970's.
 - Enviromental Effects
 - Positives
 - Between 1900 and 2008, the energy used by agriculture increased by 7000%.
 - The green revolution has saved millions of lives at a very high energy cost
 - The higher productivity of already-cultivated land preserved some ecosystems.
 - Between 1961 and 2008, food production rose 150% while population rose 100% and area converted for agriculture only rose 10%
 - Prevented deforestation and habitat loss
 - Negatives
 - Between 1900 and 2008, the energy used by agriculture increased by 7000%.
 - Increased use of fossil fuels to produce fertilizer and pesticides as well as the fossil fuels used to run a farm equipment has contributed to global warming.
- **Chemical Pesticides**
 - To prevent crop losses from pests and weeds, people have developed thousands of chemical pesticides.
 - The ability of a pesticide to reduce the amount of pests declines over time because the pest population evolves to resist it.
- **Terms**
 - Salinization
 - Buildup of slats on the soil's surface that make the land unusable for crops
 - Overgrazing

- When grass is consumed by animals at a faster rate than it can regrow
- Monoculture
 - Planting of a single crop, strips soil of nutrients



Friedland et al., *Environmental Science for the AP® Course*, 3e,
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