### Unit 5: Agricultural and Rural Land Use Patterns and Processes

| **agricultural practices and land use patterns** | influenced by physical environment and climatic conditions  
| **climatic conditions**: how weather affects agricultural practices and products  
| **tropical climate**: hot humid climate that produces certain plants, such as cassava, banana, sugar cane, sweet potato, papaya, rice, maize,  
| **Mediterranean climate**: dry-summer climate that produces certain fruits, vegetables, and grains such as grapes, olives, figs, dates, tomatoes, zucchini, wheat, barley and prevails along the shores of the Mediterranean, in parts of California and Oregon, in central Chile, at South Africa’s Cape and in parts of southwestern and southern Australia|
| **intensive farming practices** | farming that uses significant amounts of labor/money  
| **market gardening**: small scale food production (fruits/veggies) for sale at local markets  
| **plantation agriculture**: cash crops (cotton, coffee, sugar, tea) grown on large estates, usually for export; a legacy of colonization  
| **mixed crop/livestock systems**: combination of cash crops and livestock to complement land and labor demands across the year|
| **extensive farming practices** | farming that uses smaller amounts of labor/money in relation to the land area  
| **shifting cultivation (slash and burn)**:  
| - cultivation of crops in tropical forest clearings using a natural rotation system  
| - the forest vegetation is cleared by cutting and burning  
| - the result is a layer of ash that contributes to the soil’s fertility  
| - farmers move to another parcel of land when the soil becomes infertile  
| **nomadic herding (pastoral nomadism/transhumance)**: seasonal migration of domesticated livestock, usually fixed territory between highlands & lowlands  
| **ranching**: the business of raising livestock (cattle, sheep)|
| **rural land use patterns** | shaped by agricultural practices  
| **rural settlement patterns**: clustered, dispersed, linear |
| types of land survey systems | **long-lot survey system:**  
| | • divided land into narrow parcels stretching back from rivers, roads, or canals giving each household equal access to water resources  
| | • reflects a particular approach to surveying that was common with French areas in America  

| metes and bounds survey system: | **survey of irregularly shaped tracts of land (does not conform to rectangular system of surveys)**  
| | • relies on descriptions of land ownership in reference to natural features such as streams, hills, trees, etc. that was common in English areas in America  

| township and range survey system: | **rectangular survey system used by the U.S. federal government to divide the land into a grid like pattern**  
| | • designed by Thomas Jefferson to facilitate the dispersal of settlers evenly across farmlands of the US interior  

| early hearths of domestication of plants and animals | - Southwest Asia (Fertile Crescent)  
| | - Indus River Valley (India)  
| | - Southeast Asia  
| | - Central America (Mesoamerica)  

| **Fertile Crescent:** | hearth of early agriculture and early civilization (Cradle of Civilization) most credited with Southwest Asia (Tigris and Euphrates floodplains)  

| global diffusion of First Agricultural Revolution | **First Agricultural Revolution:** dating back 10,000 years, when humans achieved plant and animal domestication  

| **Columbian Exchange:** | facilitated the global diffusion of plants, animals, diseases, human population, culture, technology, and ideas  

| **Globalization of Agriculture:** | improvements in transportation and communication technologies create a variety of goods offered year-round, when they traditionally were only available seasonally e.g. strawberries in winter  

| advances and impacts of the Second Agricultural Revolution | **Second Agricultural Revolution:** improved methods of cultivation, harvesting, and storage of food that started in the Middle Ages and THEN benefited from the Industrial Revolution with the use of machines and new technology  

| effects of Second Agricultural Revolution: | • better diets  
| | • longer life expectancies  
| | • increase in population  
| | • more people available to work in factories  

| **Industrial Revolution:** | the transformation from an agricultural society to an industrial society with the introduction of power driven machines in manufacturing, mining, transportation, and agriculture  

| consequences of the Green Revolution (Third Agricultural Revolution) for both human populations and the environment | **Green Revolution (Third Agricultural Revolution):** high yield seeds (hybrid and/or GMOs), increased use of chemicals, mechanized farming, and elaborate irrigation systems  
**positive impact:**  
- increase in food supply  
- more crops grown on same size land  
- improvement in varieties  
**negative impact (population and environment):**  
- destroying local land and traditional modes of agriculture production  
- decreasing biodiversity (hybrid seeds diminish local plant diversity)  
- impact of chemicals  |
| --- | --- |
| agricultural production regions | **subistence agriculture:** only enough food is cultivated to survive (no surplus to sell) and often land is held in common  
**commercial agriculture:** the production of crops for sale (profit)  
**monoculture:** growing one crop in a farm system at a given time  
**mono-cropping:** growing one crop in a farm system year after year  
**multi-cropping:** growing several crops in a farm system  |
| intensive and extensive farming practices are determined in part by land costs | **bid-rent theory:**  
- theory that shows what various land users are prepared and able to pay for access to the center market (CBD)  
- the further from the center market (CBD), the lower the cost for a site  
- intensive and extensive farming practices are in part by land costs  
- extension of the von Thünen model  |
| commercial agricultural operations are replacing small family farms | **agribusiness:** a large-scale mechanized farming business that is controlled by corporate interests, agriculture is gradually being controlled by a small number of large corporations instead of many independent farmers  
**feedlots/Concentrated Animal Feeding Operations (CAFOs):** animals kept and raised in confined spaces and given hormones and/or antibiotics and/or fattening grains to prepare them for slaughter at a much quicker pace than traditional forms e.g. cattle, swine, poultry  |
| complex commodity chains link production and consumption of agricultural products | **commodity chain** activities involved in the creation of a product: design, production of raw materials, manufacturing and assembly, distribution  |
| technology has increased economies of scale and the carrying capacity of the land | **economies of scale:** cost advantages gained by an increased level of production e.g. agribusiness v small family farm |
von Thünen model helps explain rural land use patterns

- von Thünen model: explains what economic activities are located where and why
  - explains the location of agricultural activities by emphasizing the importance of transportation costs associated with distance from the market
  - describes what should be grown where in relation to the market
  - illustrates the relationship between land cost and transportation cost
  - distributes various farming activities into concentric rings around a central market city
  - regions of specialty farming do not always conform to concentric rings

food and other agricultural products are part of a global supply chain

- global supply chain: a worldwide network to maximize profits in production

many LDCs have a high dependency on a single agricultural commodity

- commodity dependency: highly dependent on one or more export commodities
  - e.g. coffee in Haiti, tea in Sri Lanka, bananas in Costa Rica, sugar in Cuba, cotton in Somalia, cocoa beans in Ghana

global food distribution networks

- global food distribution: networks that are affected by political relationships, infrastructure, and patterns of world trade
### Environmental Effects of Agricultural Land Use

- **Desertification**: Process by which fertile land becomes desert as a result of human activity (inappropriate agriculture/overgrazing)
- **Soil Salinization**: Process by which the amount of salt increases in the soil (irrigation)
- **Land Cover Change**: Process by which agricultural areas are lost to development
- **Pollution**: Process by which soil is contaminated by chemicals
- **Conservation Efforts of Agricultural Land**: Improve soil structure to protect against erosion and nutrient losses
- **Sustainable Agriculture**: Farming methods that are profitable, environmentally sound and good for communities

### Agricultural Land Use

- **Slash and Burn (Shifting Cultivation)**: Clearing an area in a tropical forest for planting by burning the vegetation
- **Terraces**: Flat steps are created on the sides of hills to create more land for farming
- **Irrigation**: Artificial application of water to land for the facilitation of agriculture
- **Deforestation**: Clearing of forest to make the land available for other uses (agriculture/livestock)
- **Draining Wetlands**: Drainage for agricultural purposes
- **Pastoral Nomadism**: Pasture land that is used for animal grazing

### Societal Effects of Agricultural Practices

- **Changing Diets**:
  - MDCs: Continued demand for meat
  - LDCs: Growing demand for meat, as well as convenient, processed foods (western diet)
- **Role of Women in Agriculture**: Increased contributions to rural economies, especially in LDCs
- **Economic Purpose**:
  - Farmers in LDCs growing cash crops for consumers in MDCs instead of food for local people
  - Farmers in LDCs growing crops for illegal drugs instead of food crops
  - Farmers in MDCs and LDCs growing crops for bio-fuel
<table>
<thead>
<tr>
<th>agricultural innovations</th>
<th><strong>agricultural biotechnology</strong>: the use of scientific tools and techniques to modify plants/animals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>genetically modified organisms (GMOs)</strong>: plants or animals whose DNA has been genetically modified, often through combination of DNA from a similar plant or animal species for desired traits</td>
</tr>
<tr>
<td></td>
<td><strong>positive impact of GMOs</strong>: greater outputs on smaller pieces of land, less need for chemicals</td>
</tr>
<tr>
<td></td>
<td><strong>negative impact of GMOs</strong>: unknown health effects, unknown effects on pollinating insect population</td>
</tr>
<tr>
<td></td>
<td><strong>aquaculture</strong>: raising of fish and shellfish in ponds and controlled saltwater hatcheries</td>
</tr>
<tr>
<td></td>
<td><strong>issues with agricultural innovations</strong></td>
</tr>
<tr>
<td></td>
<td>- sustainability</td>
</tr>
<tr>
<td></td>
<td>- soil and water usage</td>
</tr>
<tr>
<td></td>
<td>- reductions in biodiversity</td>
</tr>
<tr>
<td></td>
<td>- extensive fertilizer/pesticide use</td>
</tr>
<tr>
<td>food production and consumption are influenced by social movements</td>
<td><strong>value added foods</strong>: foods that have increased in value due to alterations in production, size, shape, appearance, location, and/or convenience</td>
</tr>
<tr>
<td></td>
<td><strong>organic farming</strong>: crops produced without the use of synthetic or industrially produced pesticides and fertilizers or genetically engineered seeds</td>
</tr>
<tr>
<td></td>
<td><strong>urban farming</strong>: agriculture takes the form of roof-top, balcony, backyard gardening, as well as in vacant lots and parks in an urban area</td>
</tr>
<tr>
<td></td>
<td><strong>community-supported agriculture (CSA)</strong>: individuals who pledge support to a farm operation so that the growers and consumers provide mutual support</td>
</tr>
<tr>
<td></td>
<td><strong>fair trade</strong>: trade between companies in MDCs and LDCs in which fair prices are paid to the producers</td>
</tr>
<tr>
<td></td>
<td><strong>local-food movements</strong>: movement of people who prefer to eat foods which are grown relatively close to the places of sale and preparation</td>
</tr>
<tr>
<td></td>
<td><strong>dietary shifts</strong>: movement from a diet of processed food, meat, fat, and sugar to one that will promote good health, ideal weight, and prevent chronic disease (fruits, vegetables)</td>
</tr>
</tbody>
</table>
challenges of feeding a global population include lack of food access

| food insecurity: the state of being without reliable access to a sufficient quantity of affordable, nutritious food |
| food desert: geographic area where large grocery stores are scarce or missing and residents have limited access to fresh nutritious foods, typically found in urban, low-income neighborhoods |
| global food distribution: global hunger and food insecurity are the result of complex factors including increased demand for grain to be used to feed animals and for bio-fuels (grains are fed to animals for human consumption and in bio-fuels) |
| food distribution problems: inadequate transportation networks to markets, inability to afford the costs of production and consumption, inadequate number of markets and ways to access those markets |
| adverse weather: agricultural production can be affected by high temperatures, drought, flooding, storms, freezes |
| suburbanization: agricultural production can be affected by the growth of residential areas |

| economic effects on food production practices |
| - the location of food processing facilities and markets |
| - economies of scale |
| - distribution systems |
| - government policies |

| geographic variations in female roles in food production and consumption |
| role of females: increased role in food production and consumption that varies depending on the region/community e.g. crops, fruits/vegetables, livestock, fisheries/aquaculture, MDC, LCD |

![Graph showing female share of the agricultural labour force](image1)

![Graph showing distribution of male & female employment by sector](image2)

![Graph showing rural working hours](image3)