

Agriculture, Food Production, and Rural Land Use

Barrons Chapter 5

Historical Geography of Agriculture

- **Agriculture** is the purposeful planting of crops or raising of livestock for human sustenance
 - Is very important because lead to growth of urban civilization and began global trade patterns (long-term benefit) + more food and nutritional options (short-term benefit)
 - **Extensive** (dispersed widespread) agriculture VS **intensive** (smaller plots with greater yields, more intensive) agriculture
 - **Urban sprawl** (more urbanization of farmland) leads to a decrease in amount of agricultural land
 - Origin of agriculture - normally we think of the *Fertile Crescent* but domestication began simultaneously in many places (Mexico, East Africa, India)
 - Predecessor to agriculture was **hunting and gathering**; now is almost obsolete
- **Agricultural Economics** - many countries have some blend of the following systems
 - **Subsistence agriculture economies**: farmers produce goods to provide for themselves and other in the local community
 - **Commercial agricultural economies**: competitive market for farmers to freely market their goods w/ primary aim of making \$\$
 - **Planned agricultural economics** - associated with communist countries where govt controls production and price of goods
- Capital intensive VS Labor Intensive Cultivation
 - **Capital intensive cultivation** depends on mechanical goods like machinery, tools, vehicles, facilities, NOT much human labor
 - **Labor intensive cultivation**: lots of human labor rather than lots of machinery
- Subsistence agriculture - principal characteristic is that MOST of the food is produced for themselves rather than for commercial profit
 - **Slash and burn agriculture** - farmers raze (destroy) plant vegetation in a plot, farm for a couple years, move onto new plot w/ fresh soil
 - **Shifting cultivation** - use land, abandon, wait for land to naturally refertilize, repeat
 - **Swidden** - land cleared for farming

- Usually not good for sustaining a dense population because takes time for plots to be fertile again
- Example - Amazon Basin
- **Pastoralism**
 - Based upon nomadic **animal husbandry** (breeding and caring for animals)
 - Found in dry, mountainous areas of Africa and Asia where harsh climate makes normal crop farming not a good option
 - They rely on the animals for almost everything (clothing, food, nutrition, shelter) and must travel to find food for the animals
 - Experiencing rapid decline; modernization forcing many to abandon pastoralism
- **Esther Boserup**
 - Important agricultural geography
 - Proposed a 5 step transition where each stage represents a significant increase in intensity of cultivation system and the number of people it can support
 - Acknowledges each new phase means land can support more people BUT it also leads to depletion of soil nutrients
 - Boserup argues that increased levels of productivity counteract the detrimental fact that land is being rendered infertile from overuse
- History of Agriculture
 - **Agricultural Revolution** - humans first learn how to domesticate plants and animals to sustain themselves; most people are still farmers until late 18th century
 - **Industrial Revolution**
 - Millions of people migrated away from rural areas to urban centers like New York, Chicago, etc for factory jobs + better life
 - **Mechanization** replaces human hands with agricultural technology (shift to capital intensive cultivation)
 - Increased access to boats and trains (efficient transportation) makes shipping costs for food much cheaper and increasing range where you can send things
 - **Green Revolution**
 - Northern hemisphere sends technology, machinery, fertilizers, to less developed countries in Africa, Asia, and Latin America
 - Not actually beneficial to the people because it destroys traditional modes of agriculture + destroys ancient social structures + rampant

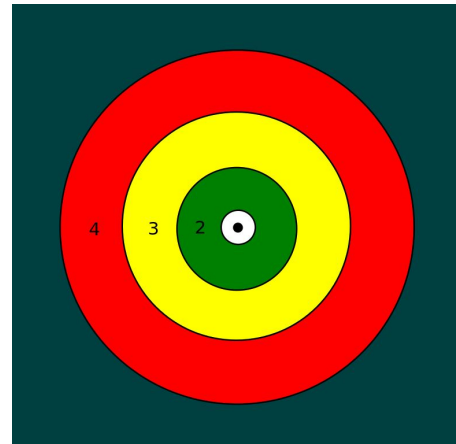
land speculation + unsustainable farming practices that left land ruined and unfertile

- Techniques used in temperate climates don't work for tropical agricultural
- Multinational corporations have their own interests in hand and manipulate ppl to grow cash crops for \$\$
- Modern Agriculture
 - High-tech agriculture, long-term weather predictions, computerized irrigation systems, GMOs
 - **Genetically modified organisms** where scientists can change plant DNA to create more healthy/resistant/gooder plants (heavily contested, ppl worry that they could be dangerous even though they have more nutrients and are more robust)
 - **Agribusinesses** - giant corporations dominate significant fraction of world's agricultural markets by controlling land, resources, tech leading to the decline of the small subsistence farmer (though there has been movements trying to bring back local food production)
 - **Horizontal integration** - several branches of the company of several commonly owned companies work together to sell products in DIFFERENT MARKETS
 - **Vertical integration** - enormous company controls many unique aspects of SAME MARKET (one big company owning seed, fertilizer, tractor company giving it control of overall market)

Geography of Modern Agriculture

- Commercial livestock
 - **Livestock ranching**
 - Widespread throughout much of western Northern America, South America, Southern Africa, etc
 - **Transhumance** - seasonal movement of livestock between different ranges
 - **Dairying** - raising and breeding cows for milk
- Commercial grain farming
 - Ppl farm wheat/corn
 - Majority of it goes to feeding livestock because they have a higher market value than grains
- **Tropical Plantations**
 - sugarcane and coffee are commonly grown in Central/South America

- Normally have foreign control through investments, management, or marketing
- Many aren't native plants and are almost always exported to other countries rather than consumed locally
- **Aquaculture**
 - Ancient w/ origins in Egypt and China
 - Fish or other aquatic organisms are cultivated for human consumption
 - Has grown rapidly over past few decades because of global demand for seafood, normally grown in tropical countries like Mexico, Ecuador, and Thailand
- **Mixed & Specialty Crop Farming**
 - Largely depends on climate
 - Humid, subtropical southeastern US grows citrus fruits, vegetables, and nuts along with cattle ranches
 - Mediterranean agriculture in Europe, Cali comprises diverse specialty crops like grapes, avocados, olives, nuts
- **von Thunen Model**
 - Rent (land value) decreases the farther away you get from central markets
 - Rent is highest in closer to urban markets and cheaper farther away
 - Only agricultural products that use land intensively, have high transportation costs, and are in great demand located close to urban markets (they are more high-maintenance and costly to produce, but also generate greater revenue in market)
- **Feedlots** concentrate the raising of livestock in a small geographic space where they are fed hormones and other fattening grains to prepare them for slaughter at a faster pace (many activities are transitioning to more intense cultivation so they take up less land)
- **Food security**
 - The idea at all people at all times should have access to enough safe nutritious food that they can live a healthy life
 - At the moment, approx 2 billion people around world lack food security
- Modern Agriculture producing max yields
 - **Biotechnology**



- Techniques to modify living organisms in a way that it improves ease of production or makes them more nutritious
- This tech allows farmers greater control over goods they produce → greater yields
- Also means small farmers lose out because they don't have access to expensive patented biotechnology
- Controversial because not much research conducted to determine possible effects (ppl are worried abt another Green Revolution w/ good intention but bad results)
- **Agribusiness**
 - Transition from agricultural production to food production (differs from agricultural production because it includes addition of economic value by canning, refining, packing)
 - TNC (transnational corporations); many small countries try to grow food for TNCs but consequences are that most of the profit goes to TNC, loss of traditional farming methods, dramatic transition from autonomous small farm control to big company regulating everything)

Agriculture and the Environment

- **Pesticides** (ex - DDT) harm wildlife populations, pollutes the water, and can work way up food chain to harm humans
- **Topsoil loss** (erosion) - loss of soil which takes long time to regenerate in areas with fragile soil, steep slopes, or bad seasonal rains
- **Salinization** - soils in dry areas brought under cultivation by irrigation and leaves behind salty residues that render the soil infertile
- **Desertification** - previously fertile lands become more dry and desert like and are no longer fertile
- Rural land use change
 - Urban sprawl is taking over formerly productive agricultural areas
 - Shift from traditional low-intensity operations to high-intensity production associated w/ specialty crops and orchards that make more \$\$ but also convert rural landscapes w/ diverse habitats → more sterile environments
- **Sustainability**
 - The idea that we want to ensure people of the future have same access to resources and opportunities that we have today
 - Very debatable because opinions are pretty subjective (What does "same opportunity mean? DO we sacrifice growth now for potential growth later? etc)

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- **Organic Agriculture**
 - Reflects or severely limits using artificial fertilizers, pesticides, hormones, antibiotics, additives, and MOS
 - Instead uses crop rotation, natural fertilizers like manure, and biological pest control to promote healthy vigorous crops