APHG CHAPTER 11
AGRICULTURE
KEY QUESTION #1: WHAT IS AGRICULTURE, AND WHERE DID AGRICULTURE BEGIN? (10 SLIDES)
KQ #1: What is agriculture, and where did agriculture begin?

- **Definition**
  - Deliberate tending of crops and livestock to produce food, feed and fiber
    - ½ of the staple grains grown in the U.S. are eaten by people; the other ½ is used for feed
    - Raising livestock for their milk, eggs or meat makes up a large segment of U.S. agriculture
    - Can be intensive (high labor/small land) or extensive (low labor/lots of land)
  - Classification of economic activities focuses on what is being produced and what activity is taking place
KQ #1: What is agriculture, and where did agriculture begin?

- **Five categories**
  - PRIMARY: agriculture, ranching, hunting/gathering, fishing, forestry, mining
  - SECONDARY: take a primary product and manufacture it
  - TERTIARY: service industry jobs
  - QUATERNARY: job involving information transmission or the exchange of money/goods
  - QUINARY: research type jobs
    - Everything begins with primary activities
    - There are no countries with developed secondary, tertiary, quaternary & quinary jobs that didn’t, at some point, have success in the primary sector
Labor Force in Agriculture, 2005

Fig. 10-3: A large proportion of workers in most LDCs are in agriculture, while only a small percentage of workers in MDCs are engaged in agriculture.
KQ #1: What is agriculture, and where did agriculture begin?

- In LDCs, high amounts of labor are involved with agriculture
  - Usually includes a lack of mechanization
- In MDCs, very few people are involved in proportion to the rest of the work force
  - 2% of Americans are involved in agricultural production
  - However, thousands work in fields of science, for seed companies, chemical producers, engineers that build machinery, as retailers that sell agricultural goods or politicians that try and protect the interests of farmers & ranchers
  - In 1950, 1 farmer in the U.S. could feed 27 people
  - Today, 1 U.S. farmer feeds 135 people
    - How? Mechanization & technological advancements
KQ #1: What is agriculture, and where did agriculture begin?

- How people lived before the origins of agriculture, as well as the origins of agriculture are important in terms of understanding how things have changed.

- Before agriculture, hunting & gathering as well as fishing dominated.
  - What they hunted & gathered was dependent on the region.

- Hunter-gatherers perfected tools, fire control & adaptation to their environments.
  - These advancements led to increased food supplies; but it wasn’t always reliable, and people still had to be migratory.
KQ #1: What is agriculture, and where did agriculture begin?

- Geographers believe that plant domestication began in Asia & South America over 14,000 years ago
  - Led to the planned cultivation of root crops
- Geographers believe that seed crop cultivation began around 12,000 years ago in the Nile River Valley and Mesopotamia regions
  - Was much more complex than root crops (had to have more elaborate watering, sowing & harvesting)
  - This marked the beginning of the “First Agricultural Revolution”
KQ #1: What is agriculture, and where did agriculture begin?

- Impact of First Agricultural Revolution led to a more reliable food source & permanent settlements
  - Led to the first time period of population growth
- P. 356 shows where most of the world’s major crops were first domesticated
  - All of these agricultural hearths eventually experienced diffusion to other areas
  - Many crops that we associate with certain parts of the world didn’t actually originate there
KQ #1: What is agriculture, and where did agriculture begin?

- Most experts think that animal domestication happened after plant & seed domestication
  - Experts guess animals were first domesticated around 8,000 years ago
- Animals were first domesticated for pet purposes
- It’s believed animals were drawn to human settlements as scavengers (looking for food) and even for protection against predators
- Read p. 357 to see where specific animals were domesticated first
KQ #1: What is agriculture, and where did agriculture begin?

- Today, there are still hunters & gatherers
  - Most are indigenous peoples
- Today, there are hundreds of millions of “subsistent” farmers
  - Subsistence farmers involves growing only enough food to survive
  - In certain times, these farmers might have a surplus, and will sell them…but that’s not the intent
- Subsistent farming regions are much more communal---food is commonly shared
KQ #1: What is agriculture, and where did agriculture begin?

- Two methods common to subsistent farmers are...
  - Shifting Cultivation: move from place to place farming land until it is not useable any more; then they move again.
  - Slash-and-burn Agriculture: trees are cut down, vegetation is burned off; the layer of ash makes the soil much more fertile.

- Today, subsistent land use is dying.
  - Shift is towards intensive large-scale farming & cash cropping... with mechanization.
KEY QUESTION #2: HOW DID AGRICULTURE CHANGE WITH INDUSTRIALIZATION? (9 SLIDES)
KQ #2: How did agriculture change with industrialization?

- **Second Agricultural Revolution**
  - Involved improved methods of cultivation and harvesting
  - Occurred at the same time as the Industrial Revolution
- Europe was the hearth of the change
  - Farmers increased the size of their farms
  - Used crop rotation
  - Used modernized forms of soil preparation, fertilization, crop care & harvesting
  - New technology was the foundation for these changes
    - All of these changes led to one result: higher output
KQ #2: How did agriculture change with industrialization?

- Diffusion of the railroad led to agricultural growth
  - Led to increased trade & movement of grains/crops
- Eventually, tractors & combines were used
  - Banks gave loans to farmers to buy the new equipment
- By the late 1800s and early 1900s, these practices had taken root in America (especially the Great Plains region)
KQ #2: How did agriculture change with industrialization?

- Two key elements of agriculture
  - Cost of transportation
  - Perishability of products
- The two go hand in hand
  - Perishable goods need to get to the market fast
  - Non-perishable goods don’t
  - Therefore, the closer perishable crops are to the consumer the better
- German farmer names Johann Heinrich von Thunen experienced this as a 19\textsuperscript{th} century farmer
KQ #2: How did agriculture change with industrialization?

- The Von Thunen Model tries to explain this
  - Center ring: city
  - Just outside the center: market gardening & dairy farming
  - Outside that zone: forest (usually non-cropped)
  - Outside that zone: Field crops, grains
  - Outside that zone: Livestock & ranching activities took place

- The model looks like a bulls-eye (draw it on the page you are instructed)
Von Thunen Model

- What farmers produce varies by distance from the town, with livestock raising farthest from town.
- Cost of transportation governs use of land.
- First effort to analyze the spatial character of economic activity.
KQ #2: How did agriculture change with industrialization?

- Things the Von Thunen model doesn’t consider:
  - Climate
  - Soil quality
  - Preferences of the consumer
  - Costs of production
  - Sometimes it's cheaper to grow something a long ways away and ship it here than it would be to grow it close
- However, his model does show the connection between perishability and transportation cost
KQ #2: How did agriculture change with industrialization?

- A concept related to the Von Thunen model is called “land-rent curve” or “bid-rent curve”
  - The further away one gets from the center of town, the less the cost or rent one will pay for land
  - Also creates the scenario where the people paying higher rent closer to town (fruit growers, gardeners, etc) will have to charge more for their goods by volume than people paying less rent
KQ #2: How did agriculture change with industrialization?

- Third Agricultural Revolution or the “Green Revolution”
  - Dates back to the 1930s
  - Basic definition: agriculture meets science
  - Involves genetically manipulated seeds and crops (Genetically Modified Organisms or GMOs)
    - Done usually to increase quality and/or quantity
    - Sometimes done to allow food to be grown in a new area where it wasn’t grown before
- Read page 363 for examples; read italicized part of 363 for a criticism of the Green Revolution
KQ #2: How did agriculture change with industrialization?

- Many feel the Green Revolution has hurt subsistence farmers that may try and sell their surplus.
- The U.S. is the world leader in this movement.
  - 38% of our corn & 80% of our soybeans are sown with genetically engineered seeds.
- Some countries don’t have access to the technology while some countries have resisted (even banned) genetically engineered food.
Another interesting fact about modern agriculture is the role of women:

- In Sub-Saharan Africa, women perform 85% of the labor work in agriculture.
- 75% in China.
- 70% in India.
ORGANIC FOOD Production

- Organic agriculture – growing crops without the use of synthetic or industrially produced chemicals and fertilizers
- The idea of organic food has risen as a counter to GMOs
- Organic production is slowly rising around the world, but becoming increasingly important in wealthier countries
- Food products labeled organic are sold mainly in the global economic core, although they are definitely grown in all regions (periphery & semi-periphery too)
- Production & sales of organic food in the U.S. is steadily rising: in 2009, it comprised 3.9% of all food sold
- Benefits = good for environment, better nutrition (?), taste & health for people
- Costs = much more expensive, not always easy to find, labeling can be a problem
KEY QUESTION #3: WHAT IMPRINT DOES AGRICULTURE MAKE ON THE CULTURAL LANDSCAPE? (5 SLIDES)
KQ #3: What imprint does agriculture make on the cultural landscape?

- If you fly, you can see the impact that agriculture has on the cultural landscape
  - Big green circles where center-pivot irrigation systems take place
  - Checkerboard patterns that show land ownership/property lines
- Land is usually bought or sold in 1 square mile sections
  - Sometimes bought and sold in whole, half or quarter sections
  - Look at picture on 365
KQ #3: What imprint does agriculture make on the cultural landscape?

- Two other different methods of separating land boundaries exist
  - Metes & bounds survey
    - Big along the east coast, natural features used to demarcate parcels of land
  - Longlot survey
    - Big in Canada, Louisiana & Texas; divides land into strips along features such as rivers, roads or canals
Dominant Land Survey Patterns in the US
KQ #3: What imprint does agriculture make on the cultural landscape?

- The ways villages (which are usually agriculturally subsistent) also influence the cultural landscape

  - Five forms
    - Linear
    - Cluster
    - Round
    - Walled
    - Grid

  - Look at figure on p. 368; draw them in your next box
Village Forms

A. Linear Village
B. Cluster Village
C. Round Village
D. Walled Village
E. Grid Village

Village Forms
- Dwelling, Barn
- Road
- Field Boundary
- Garden
- Farmland

(Modified from Spencer & Thomas, 1978)
KQ #3: What imprint does agriculture make on the cultural landscape?

- **Farming techniques can also impact the landscape**
  - Crop rotation: one crop planted; then switched to another crop later
  - Multi-cropping: planting of more than one crop on a plot of land
  - Double cropping: plant two crops one after another in the same year on the same plot
  - Triple cropping: three crops
KEY QUESTION #4: WHAT IS THE GLOBAL PATTERN OF AGRICULTURE & AGRIBUSINESS? (12 SLIDES)
KQ #4: What is the global pattern of agriculture & agribusiness?

- To understand agriculture, one must understand the impact that climates have.
  - Climate influences:
    - Latitude, closeness to water, elevation, nearby landforms
- Look at the map on p. 372-373 to see the different climate types
KQ #4: What is the global pattern of agriculture & agribusiness?

- Climate, obviously, has a huge influence over agricultural decision-making
- Look at the maps on p. 374-375
- TRENDS:
  - Most countries focus on one type of agriculture
  - Countries like the U.S. are an exception
  - Nomadic and subsistent activities dominate many of the world’s most populated LDCs (less developed countries)
KQ #4: What is the global pattern of agriculture & agribusiness?

- In terms of commercial agriculture, different types exist

- **PLANTATION AGRICULTURE**
  - Plantations were set up by colonizing peoples in their colonies
  - Usually these plantations focus on one “cash crop”
  - Sometimes these crops aren’t really necessities…these are called “luxury crops”
  - Again, look at p. 374 and notice that color codes 3, 4, 6, 7, 8 and 11 usually involve a cash crop
KQ #4: What is the global pattern of agriculture & agribusiness?

- Examples of former colonies & what they have produced since colonization
  - Latin America: bananas, sugar, coffee, cocoa
  - West & East Africa: rubber, cocoa, tea
  - South Asia: tea
  - Southeast Asia: rubber

- Cotton production was big in America, India, Egypt, Mexico, Brazil and other places

- The Colombian Exchange had a big impact here and globally
KQ #4: What is the global pattern of agriculture & agribusiness?

- BROUGHT FROM OLD WORLD TO NEW WORLD
  - Wheat, rice, coffee, apples, citrus, horses, cattle, hogs, chickens, sheep, goats

- BROUGHT FROM NEW WORLD BACK TO OLD WORLD
  - Corn, cayenne pepper, bell peppers, potatoes, tomatoes, tobacco, rubber, peanuts, cocoa, turkeys
World Rice Production, 2005

Fig. 10-6: Asian farmers grow over 90% of the world’s rice. India and China alone account for over half of world rice production.
World Corn Production, 2005

Fig. 10-7: The U.S. accounts for about 40% of world corn (maize) production. China is the 2nd largest producer. Much of the corn in both countries is used for animal feed.
World Wheat Production, 2005

Fig. 10-10: China is the world’s leading wheat producer, but the U.S. is the largest producer of wheat for sale and the largest exporter.
Fig. 10-15: Most countries are net importers of grain. The U.S. is the largest net exporter.
Meat Production on Ranches

Fig 10-12: Cattle, sheep and goats are the main meat animals raised on ranches.
KQ #4: What is the global pattern of agriculture & agribusiness?

- Specialized activities are critical
  - Examples:
    - Mediterranean agriculture is dominated by palms, olives, artichokes, avocados & grapes
    - Dairy farming is big in Midwestern USA & central Europe
      - The “milkshed” is the area around a city where fresh milk can be delivered without spoiling
World Milk Production, 2005

Fig 10-8: Milk production reflects wealth, culture, and environment. It is usually high in MDCs, especially production per capita, and varies considerably in LDCs.
Milk production has grown more rapidly in LDCs than in MDCs since the 1960s.
KQ #4: What is the global pattern of agriculture & agribusiness?

- A modern movement in terms of trade is the concept of “fair trade”
  - This means MDCs paying a “fairer” price for imports from LDCs
    - This boosts the economies of the LDCs, raises wages for those poorly paid workers, etc
    - Starbucks was one of the first main corporations to use strictly “fair trade” products
KQ #4: What is the global pattern of agriculture & agribusiness?

- Commercial activities have had a huge environmental impact
  - Overfishing in certain regions
  - More and more land cleared for farming
  - Chemicals used on the land (pesticides, herbicides, and even antibiotics) that get in the soil & groundwater
KQ #4: What is the global pattern of agriculture & agribusiness?

- **Agribusiness**
  - Business that provides goods & services to support the agricultural industry
- **Good example is the chicken industry**
  - In past, local farmers & ranchers would raise chickens and sell them at market
  - Today, a small group of businesses control the chicken market
KQ #4: What is the global pattern of agriculture & agribusiness?

- These businesses use methods such as…
  - Selective breeding (makes faster growing, bigger chickens)
  - Chickens are packed tight into mechanized chicken houses
  - These “chicken farmers” today are more worried about banking issues, repairing equipment and negotiating with companies that sell chicken than the agricultural part of it
KQ #4: What is the global pattern of agriculture & agribusiness?

- Hog production is similar
  - For example... In 1992, there were 31,000 hogs marketed in Texas County, Oklahoma.
  - In 1996, there were 2 million sold.
  - HOW?
    - A corporation built a mechanized, expensive processing plant and production increased.
KQ #4: What is the global pattern of agriculture & agribusiness?

- As cities grow, many areas that were once farmland become suburbs.
- Read first paragraph on p. 379 under “Loss of Productive Farmland” for an American example.
- This is not just an American problem...it’s a global one (especially in crowded MDCs).