DATES TO REMEMBER

❖ **COURSE EVALUATION PERIOD NOW OPEN**.
Can do it on line or on a SmartPhone

- Sign in with your Hunter NetID and password
- **Check your Hunter email account for notice from the Dean of Students.**

❑ **Dec 7: Last day** to hand in **PRE-APPROVED** EXTRA CREDIT research paper or discussion paper.
Exercise 5 - *My Neighborhood* is due.

❑ **Mon., Dec 11**: Last class lecture. **Thurs., Dec 14 from 2-4 PM: Final Exam**

- **Four essays** focused on the major themes of cultural geography from a choice of 7 topics, plus m/c defs.
- **Last day** to hand in "Geography in the News" extra credit option (see syllabus).

GEOG 247 Cultural Geography

AGRICULTURE 3:

the imprint on the land

Prof. Anthony Grande
Hunter College-CUNY

Spatial Layout and Division of Agricultural Land

❖ **The impact of agriculture on the landscape is a variable of different physical and cultural elements that come together in a number of ways.**

➢ **Variables include:**

- Climate, landform, soil and water resources.
- Intensive land use vs. extensive land use
- Subsistence land use vs. commercial land use
- Local customs, economic factors, legal restraints, technological abilities, government regulations and religious guidelines.

Spatial Layout and Division of Agricultural Land

❖ **The result of agricultural activity on the landscape is a visible imprint of readily identifiable features and varies with culture groups.**

✓ Field size, preparation and use of the land, along with the visual patterns of agricultural fields as seen from afar, all differ with culture groups, commodities grown or raised, and with the prevalent economic system.

✓ The features can be organized and regular or random and changing from year to year.

✓ Commercial farming with mechanization will impart a different view to the land than intensive labor, subsistence farming.

Vietnam's Agricultural Landscapes


Mu Chang Chai


Bac Son Valley


Mekong Delta


Central Highlands

Commercial Agriculture

The commercialization of agriculture has resulted in the world-wide intensification and consolidation of agricultural practices including:

- Reduction in the number of farms
- Enlargement in the size of farms
- Loss of "general farms" in favor of specialty farming: one or two crop operations

➢ **21st Century:** Rise in the number of small farms in developed areas that fill the consumer-driven niche for **organic and local food**.

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Commercial Agriculture

EXTENSIVE:

- Larger farm units on cheaper land that are farther from market
- Large-scale grain farming
- Livestock ranching >>>>>>>>

INTENSIVE:

- Production of crops that give high yields and high market value per unit of land
- Truck farming (fruits/vegetables)
- Dairy farming
- Livestock-grain farming
- "Live-stock factory" farms: for milk, beef, wool, hogs, chickens >>>>

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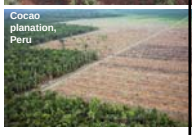
Commercial Agriculture: Specialty Crops



❖ **Specialty crops are grown where natural conditions, consumer demand and transportation come together.**

Circumstances can make some places far from markets intensively developed farming areas.

Mediterranean-type agriculture

Grapes, oranges, figs, vegetables, olives

Plantation crops

Large agricultural holdings, frequently foreign-owned, devoted to the production of one or two export crops

Typically tropical, near coasts for export

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Commercial Plantation Replaces Peasant Farms

✓ **Base for European expansion into Asia, Africa and Latin America**
✓ **Subtropical-tropical areas**
✓ **One crop farming**
✓ **Capital intensive**
✓ **Workers live on plantation**
✓ **Tension between labor and management**

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Commercial Livestock Feeding

Animals are fattened for slaughter in feed-lots after journey from ranch or farm.

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Farming the water: Fishing

Fishing (a primary activity) **is a major supplement to human food resources** esp. when populations are large and high density and agric. land is not productive.

- About 80% of annual fish harvest consumed by humans, rest used for livestock feed or fertilizer
- **Fish supply comes from**
  - Inland catch (fresh water)
  - Fish farming (both fresh and salt)
  - Marine catch (open oceans, salt water inlets)

Maximum sustainable yield exceeded in local waters in many areas of the world affecting local culture and traditions.

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Problems facing Fishing

Commercial marine fishing

- Concentrated in the northern Atlantic and Pacific.
- Uses sophisticated tech. to locate and catch fish.
- Overfishing of prime fishing grounds has resulted.

Global warming

- Changes in water temperature affect fish species.
- Fish are relocating away from areas of historic concentration in response to water temp changes.

Quality of the catch

- Pollution of freshwater areas, coastal waters and deep sea areas.
- Concern about fish quality in fish farms (aquaculture)

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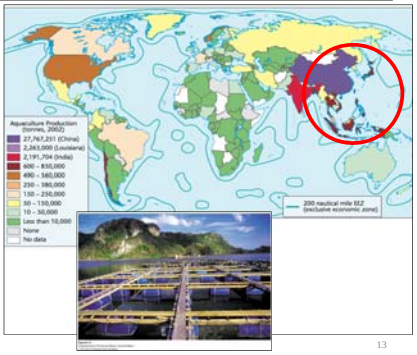
Aquaculture/Mariculture

Source of protein in diets. Practiced along the coasts.

Concentrated in east and south Asia.

China is dominant in the world production of farmed seafood.



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Aquaculture
(fish farming)

Commercial aquaculture is a 20th c. enterprise and is the fastest growing sector of the world food economy.

- ✓Has existed for over 4,000 years
- ✓Means of increasing fish supply
- ✓Virtually all farmed fish are for human consumption
- ▪ **Disadvantages:**
  - – Pollution from fish wastes, chemicals and drugs.
  - – Transference of disease/ parasites to wild fish stocks.
  - – Depletion of wild fish stock to feed farmed fish.
  - – Genetic damage to wild fish stock.

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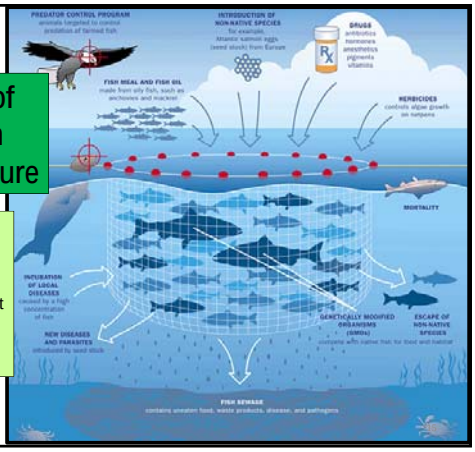
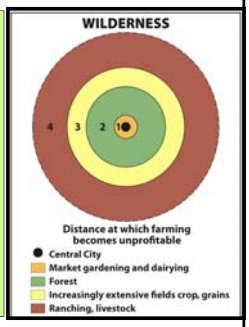
Risks of Ocean Aquaculture

Large-scale commercial fish farming may have an adverse affect on traditional local fishing communities.



Modeling the Land: Von Thünen's Circles

- ❖ Johann Heinrich **von Thünen** was an early 1800s town-based farmer and economist.
- He noted that as one moved away from the town, one type of commo-dity/crop gave way to another.
- Based on economics, he said that agricultural land layout should be concentric circles.
- ➢ His model is often described as the **first effort** to analyze the spatial character of economic activity (later applied to industrial location).



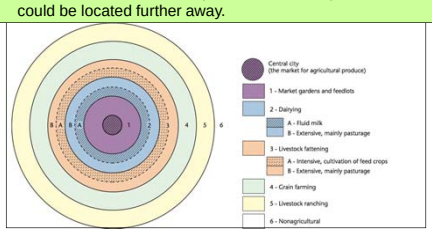
Von Thünen Model

- ❖ **The greater the distance** to market, the **higher the transport costs.** Also the greater the daily distance to field sites, the more time-consuming the chore would be **(travel time)** and the less time the farmer would have to do other things **(time-distance principle).**
  - ✓ **These factors must be added to the cost of producing a crop or commodity and therefore the price charged for it.**
- ➢ Even when agricultural production does not conform to the concentric rings of the model, his underlying concern with the interplay of distance, time, land use and transporta-tion costs still is a factor in today's agricultural patterns.

Von Thünen's Model applied to Agricultural Land Use

- ❖**The concentric rings represent the ideal of equidistance from the farm house** (base).

  Daily chores (attention) needed to be close to the base while those commodities that required minimal or sporadic attention could be located further away.



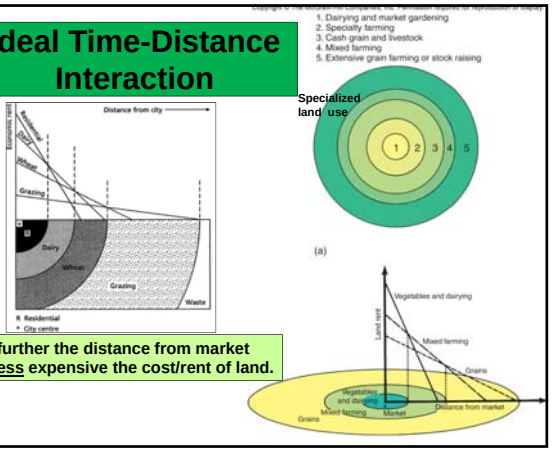
Von Thünen's Model applied to Agricultural Land Value

❖**This model was also applied to the cost of land.**

- Land uses are a function of differing "rent" values that reflect cost of overcoming distance to a market town.
- Land close to markets is used intensively in small units for high-value crops
- Land far from markets is used extensively in larger units for low-value crops

➢ **Reminder: This model was developed in early 19th century when transportation systems were less efficient (slow) and product preservation was difficult.**

Ideal Time-Distance Interaction

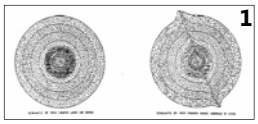


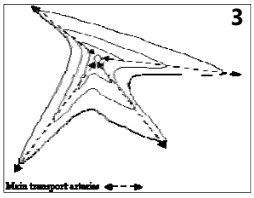
The further the distance from market the less expensive the cost/rent of land.

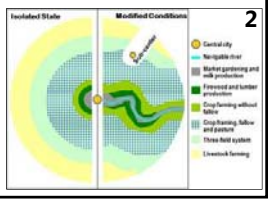
Time-Distance Variables with Transportation Added

Spatial patterns of land use, land value with transportation.

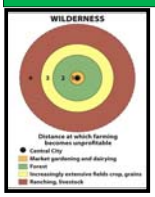
Road and rail connections increase the distance without increasing time spent traveling.







Relevance of Von Thünen's Model to Present Conditions



Von Thünen's Model only provides an approach, which may be applied generally, without claiming universality. Though basic forces still remain, certain changes can be identified since this model was postulated.

1. New and more accurate models of transportation are available.
2. Transportation costs do not always vary similarly in all directions.
3. Refrigeration has prolonged the life of perishable commodities like milk and vegetables.
4. Firewood is no longer the major fuel and wood no longer essential.

Aspects of the model can be seen in the agricultural pattern of small developing countries where the focus is on a main city or port and where the transportation network is limited.

Shapers of the Visual Landscape

Agricultural Landscape
- Cultural appearance of agricultural areas including field pattern, crops and products, techniques, buildings, transportation.

Cadastral Pattern
- The shapes formed by property borders; the pattern of land ownership.

Survey Patterns
- Original land survey patterns imposed by government regulation or large land owners.

Hamlet
- Small rural settlement that houses local farmers.

Field Pattern
- Sub-division of land for agricultural use; may be dependent on cadastral and survey patterns.

Field Sectioning
- The separation of interior spaces within an existing pattern; result of methods used to enclose or protect space; adds to the visual experience by varying texture and color.

Agricultural Landscape

What do we see?

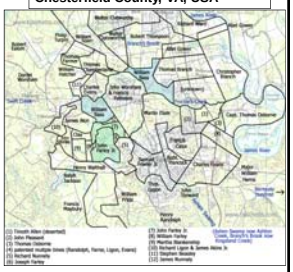
View includes:
Roads
Survey pattern
Hamlet
Field pattern
Field sectioning

Can't see legal property lines.

Rural Cadastral Plats

Plat showing numbered properties in rural France.

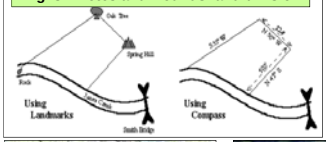
Named property owners with fields Chesterfield County, VA, USA



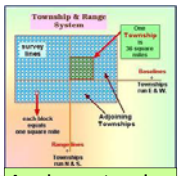
A **plat** is a map showing land division based on ownership (plots) or assignment.

Land-Survey Patterns

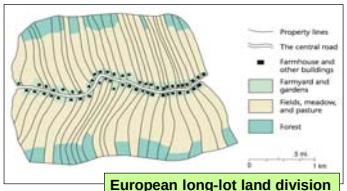
English Metes and Bounds land division



Land-Survey Patterns



American rectangular land division



European long-lot land division

HAMLET

A hamlet is a concentration of living quarters along a road close to the fields for farm owners and field hands.

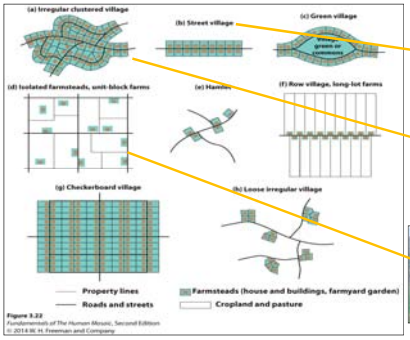
They are smaller than villages and usually do not provide residents with essential services.

Fragmented land holdings are common around the world.

Farmers own land in different venues to get the benefits of a location (good soil, pasture, woodland, access to water).

Scattered holds are not efficient and can lead to conflict between farmers, including rights of passage.

Rural Settlement Landscapes



Commons

❖A public area "held in common" and used by all residents, usually for grazing animals, gathering wood, hunting or fishing.

➢A collective farm, commune or kibbutz is an extension of this concept.

English rural layout with "common" lands

<<Newcastle, UK

Salem, MA>>

Field Patterns

http://earthobservatory.nasa.gov/IOTD/view.php?id=6605
http://earthobservatory.nasa.gov/Images/related_to.php?id=6605

Artificial Landscapes

Artificial Landscapes

Field Sectioning

Agricultural landscapes will include smaller partitioned areas purposely created by farmers.

These areas may be created by roads/paths, barriers (fences/walls/ ditches), methods of cultivation, the types of crop grown (colors and heights) or the commodity raised (plants and animals).

Fences and other types of barriers are very common partitions, esp. in more densely populated area.

Fences

Various structures have been created to separate fields and land uses.

- ✓ Construction method and composition varies with culture group and materials available.
- ✓ Common materials: wood, stone and live dense vegetation (hedge)
- ✓ Techniques include: digging trenches and moats and building raised ridgelines.

Main purpose of using fences and barriers is:

1. To keep livestock in and predators out.
2. To keep pests out.
3. To prevent trespass-ing and/or theft.
4. To demarcate own-ership of property.

Forms of Field Separation

- Wood
- Hedge
- Stone
- Barbed wire
- Metal
- Trenches and moats

English Hedgerows





Wooden Fence Construction





Wooden Fence Construction





Stone Fence Construction






Field Patterns

Cultivation Patterns





Worldwide Food Security

This topic touches on:

1. **The technological ability for the world's farmers to produce enough food to feed all people** (remember Malthus).
2. **The use of GMOs to both produce more volume at higher quality and to insure against catastrophic events.** (But what if it causes a catastrophic event?)
3. **The changing aspects of culture with regard to agricultural products and practices** (tradition).
4. **The willingness of people to change and adapt to new situations** (globalized agriculture; climate change).
5. **Food safety** – outbreaks of plant and animal diseases; insect infestation; long term affects of GMOs.

The Challenge of Feeding Everyone

- **Food deserts** are areas with limited access to fresh, nutritious foods. Worldwide, about 1 billion people are malnourished.
- **Inadequate distribution systems** and **poverty** prevent surplus food supplies from being sent to where they are needed.
- **Monocropping for profit** has replaced traditional garden agriculture in many areas.
- **Luxury crops** are **non-subsistence** crops (such as tea, cacao, coffee, spices, tobacco, coca, poppies, etc.) have high demand and are cash crops for farmers.
- Some of the most fertile, productive **farmlands have been lost to expanding cities.**

Local-Global Food Provision

❖ **Through the centuries exploration, colonization and globalization have created new regional cuisines and the taste for certain products beyond their original production areas.**

- Fresh fruits/vegetables are now available year-round. Exotic products can be shipped anywhere in the world for a price.
- But have resulted in decreased biodiversity, abandonment of local crop varieties, and market prices too low for subsistence farmers to survive on.

Agriculture and People: Environmental Issues

- **Sustainability of agriculture,** including adaption to climate change (wetter/drier/warmer/growing periods)
- **Farmer preference for cash crops** - reduces variety
- **Intensity of land use** - uneven use worldwide
- **Land clearing** - including deforestation and resultant soil erosion
- **Use of chemical fertilizers and pesticides**
- **Desertification** - water diversion
- **Organic agriculture** - low output at higher cost
- **Biofuels and horticulture** - replacing food grown for humans with non-edible plants, including illegal drugs
- **Invasive species** - plant and insect
- **Overfishing** - depletion of supplemental food resources

NEXT

ECOMONIC GEOGRAPHY and CULTURE