Boserup Thesis: (Ester Boserup was a Danish economist)

Conditions of Agricultural Growth:

1. Forest-Fallow* Cultivation. Clearing off trees. 20-25 years.
2. Bush-Fallow Cultivation. Mature trees are gone, bushes to clear. 6-10 years.
3. Short-Fallow Cultivation. Let soil get ready for crops. 1-2 years.
4. Annual Cropping. Rotating crops.
5. Multiple Cropping. Several crops a year off of the same land.

*Fallow is uncultivated land!

Boserup believes that pressure from population causes agriculture to grow. The fallows get shorter with increased production.

In each stage, the population, land use and labor all increase, while output and labor decreases.

Boserup Thesis continued:

In the 19th century the Dutch came up with crop rotations, clovers and mixed farming (crops and livestock w/ manure used as fertilizer). Animals were put in stalls & fed turnips and clover.

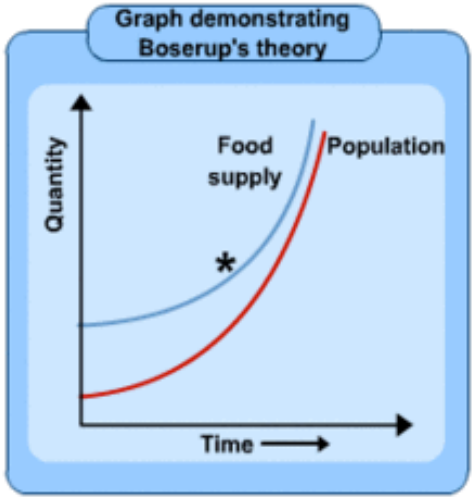
*With this system, crop fertility is maintained and animal products are added.

Boserup's Agricultural Intensification Theory

Definition- Boserup's agricultural intensification theory states that the agricultural means employed in a given area are dependent on the population density. The rate of agricultural development is dependent on both of these factors, and therefore productivity is altered by the fluctuating levels of development.

Explanation- When population density is low; slash and burn agriculture and fallowing can be used, while high population density calls for sustainable means of production such as annual cultivation. Changes in population and therefore in agricultural practices effects the innovation of agriculture and production is effected as a result. During times of hardship, agricultural practices advance rapidly as production rises with more work but less efficiency, thus preventing the food supply from reaching carrying capacity.

Example- This theory is more applicable to developing countries since although unsustainable agriculture is often practiced, changes in agricultural technology arise and often coincide with population fluctuations.



Carrying capacity is never reached due to agricultural innovation

BOSERUP'S MODEL OF AGRICULTURAL DEVELOPMENT

Geographer: **Ester Boserup**, author of "**The Conditions of Agricultural Growth**"

1. Challenge to the Malthusian idea of population

   He says: Increasing population =

   She says: Increasing population =

2. Issue of sustainability:

Critics say:	***She*** says:
The model presents a system which is ultimately unsustainable due to increasing infertility of the soil.	

1. Answer:

   He says: Increasing population = eventual starvation

   She says: Increasing population = agricultural development

2. Answer:

   They say: The model presents a system which is ultimately unsustainable due to increasing infertility of the soil.

   She says: Increased levels of productivity will counteract this.

3. The thesis: *The engine that drives development is population pressure. Without population pressure, a culture/civilization is unlikely to go beyond whatever stage of development it is currently in.*

	Stage 1: Forest Fallow	Stage 2: Bush Fallow	Stage 3: Short Fallow	Stage 4: Annual Cropping	Stage 5: Multi-cropping
Population Density	Very low	→	Moderate	→	
Tools	Fire, digging stick	→	Hoe, plow, draft animals	→	
Settlements	Dispersed, non-permanent	→	Permanent villages	→	
Transportation	Paths, trails	→	Evolution of road network	→	
Land Tenure	General use right, no "ownership"	→	Persistent rights to agricultural land	→	

	Stage 1: Forest Fallow	Stage 2: Bush Fallow	Stage 3: Short Fallow	Stage 4: Annual Cropping	Stage 5: Multi-cropping
Population Density	Very low		Moderate		High
Tools	Fire, digging stick		Hoe, plow, draft animals		Tractors
Settlements	Dispersed, non-permanent		Permanent villages		Urbanization
Transportation	Paths, trails		Evolution of road network		Urban focused network, efficient transportation
Land Tenure	General use right, no "ownership"		Persistent rights to agricultural land		Permanent ownership, landlord/tenant

4. Criticisms and limitations:

A) Looks only at forest climate...

B) Agricultural development and population growth may be the *effects* and not the cause (as she asserts) of other forces...

Criticisms and limitations:

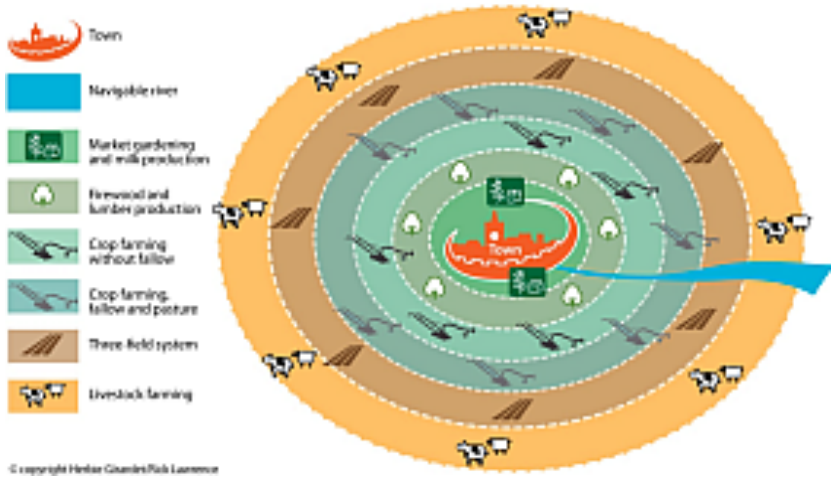
- looks only at forest climate. What about tropical savannahs? grasslands?
- agriculture may be the effect and not the cause. What about political institutions, development of cash economy? A colonial gov. may have required the production of a cash crop resulting in population pressure.

Heinrich von Thunen:

A German, large land-owner that wanted the best arrangement for crops. In the 1820s he built a model and wrote a book called <u>The Isolated State</u>.

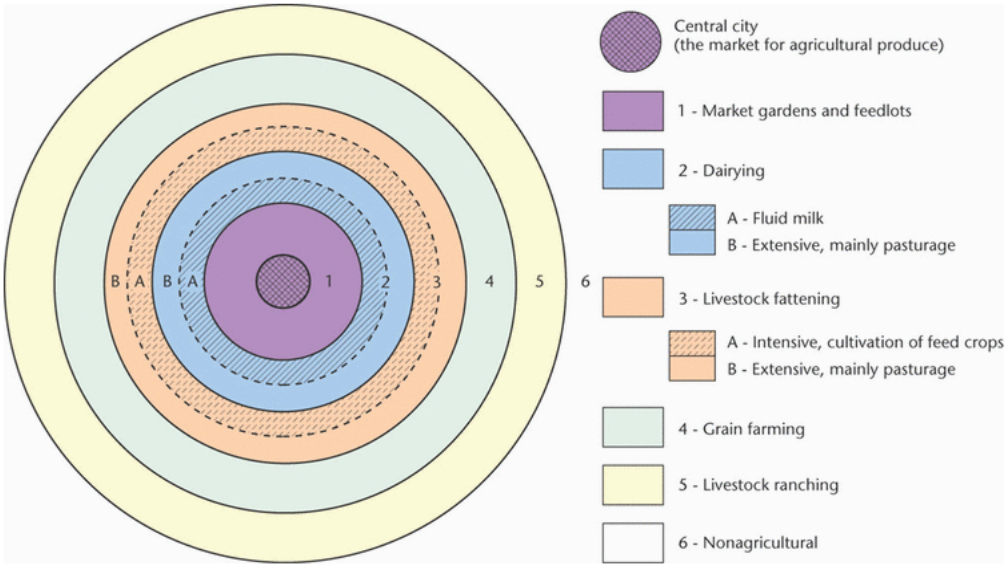
-He assumed a market town is in an isolated plain. And, that the town is where all the local agriculture was sold.

-He looks at the distance to the market, but assumes that the physical environment is all the same (no rivers, mountains, etc.). In other words, he assumes an isometric surface.



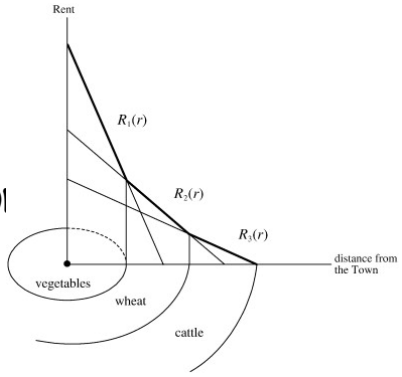
Heinrich von Thunen:

Zone/Ring:	Original model:	Updated model:
Zone 1:	- Market, market gardens & feedlots	– Market & market gardens
Zone 2:	- Horticulture and dairying (perishable)	– Dairying & horticulture
Zone 3:	- Timber (hard to transport & main source of fuel & buildings)	– Livestock fattening
Zone 4:	- Intensive arable	– Grain Farming
Zone 5:	- Less intensive arable	–Livestock Ranching
Zone 6:	- Ranching (livestock grazing)	–Non–agriculture



Economics of von Thunen:

*Cost-to-distance relationship



-Inverse relationship between the value of labor and distance from the center. Higher labor is closer to center. Less labor costs is further out (can spend $ on transportation). So, fruits and veggies are more expensive than wheat.

-Rent and/or value of land increase exponentially as you get closer to the towns' center.

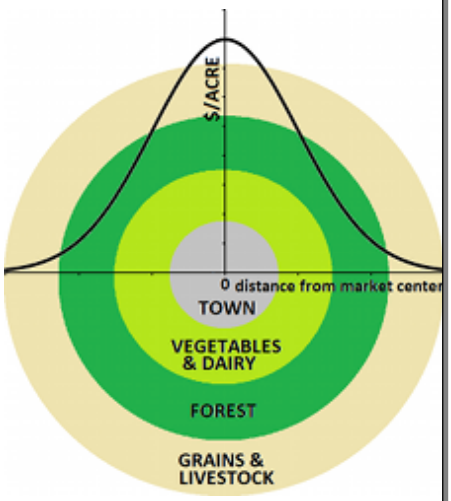
von Thunen and $$:

-Value of land increases closer to market. (Bid-rent theory)

-Intensive crops spend more money, so can't spend as much on transportation - so closer to market.

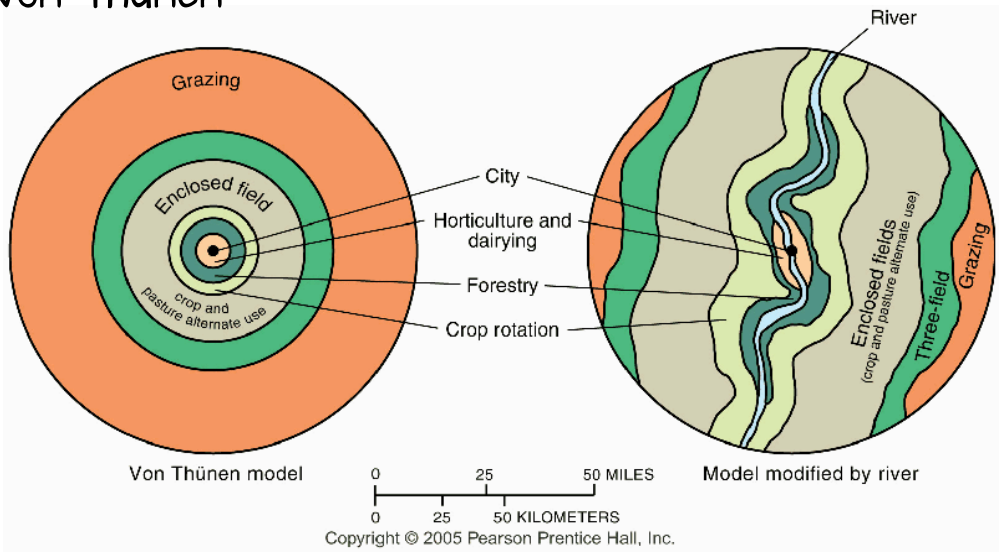
-Also, highly perishable items close to market, like milk, fruits & vegs.

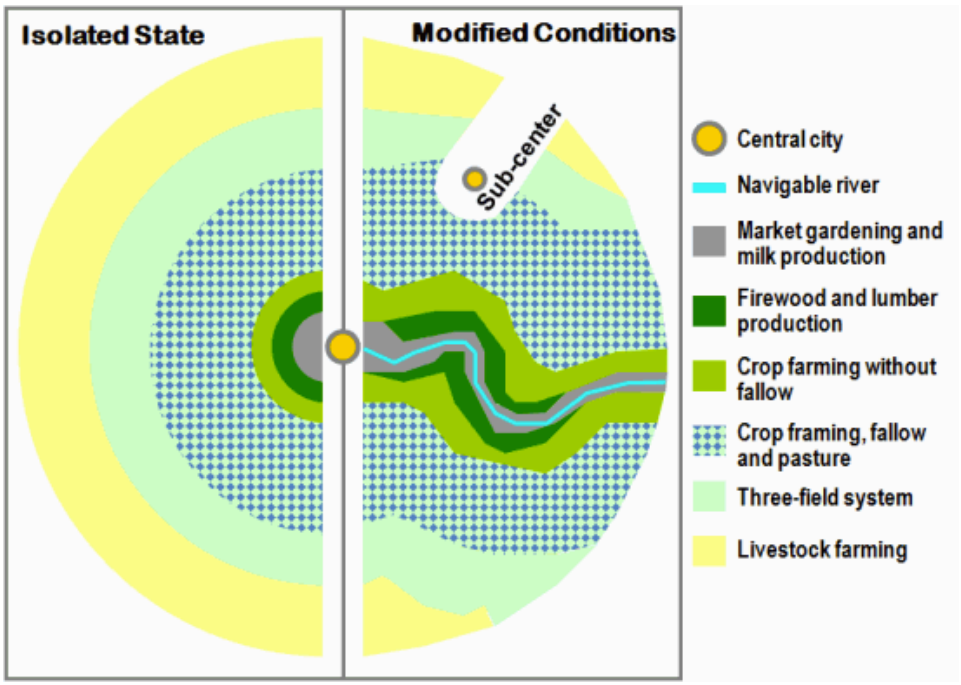
-Extensive crops need lots of land, so further from market.



March 01, 2016

von Thunen





Think about Beaverton and surrounding farming areas. Apple farms close and wheat farms further.