

Agriculture and Rural Land-Use

AP Human Geography ■ Unit 5

AP Human Geography



What we will cover

- 1 Intro & settlement
- 2 Origins & revolutions
- 3 Production regions
- 4 Von Thünen
- 5 Global system
- 6 Consequences & challenges

1

Foundations

Introduction and settlement

- **Agriculture** 农业 is the deliberate growing of crops and raising of animals.
- **Intensive** 集约农业 = high input on a small area; **extensive** 粗放农业 = low input over a large one.
- **Subsistence** 自给农业 feeds the family; **commercial** 商品农业 is for sale.
- How farmers settle and divide the land leaves a pattern still visible from the air – next slide.



Subsistence farming feeds the household

Settlement patterns, and the systems that divide land

clustered (nucleated) 集聚式

homes grouped together, often around a church, well or crossroads

dispersed 分散

homes spread apart across the farmland they work

linear

strung along a road, river or canal

metes and bounds 界址法

survey by **natural features** – “to the oak, then along the creek”; irregular fields

township and range 方格法

a **grid of squares** imposed regardless of terrain – the US Midwest from the air

long lot 长条田

narrow strips each touching a river or road, so every holding has water access – Quebec, Louisiana

Survey method is visible from the air centuries later. That persistence is why it is a favourite **cultural landscape** question.

Origins and revolutions

- An **agricultural hearth** 农业起源地 is where farming began (Fertile Crescent).
- The Second Agricultural Revolution mechanised farming with the **Industrial Revolution** 工业革命.
- The **Green Revolution** 绿色革命 used high-yield seeds – big yields, costly inputs.



Mechanisation raised yields at scale

Three agricultural revolutions, and the model that follows

First (Neolithic)

The **first (Neolithic) agricultural revolution**: domestication of plants and animals, in several hearths independently, which made settlement possible.

Second

Tied to industrialisation: mechanisation, improved rotation and transport, which freed labour for the factories.

Third (Green Revolution)

High-yield varieties, fertiliser and irrigation – and its costs: debt, water use, and lost seed diversity.

Subsistence agriculture

Subsistence agriculture feeds the household; commercial agriculture sells, and the two respond to completely different signals.

The **von Thünen model** explains the rings around a market by perishability and transport cost – and it still explains why market gardens sit nearest the city.

Three agricultural revolutions

first (Neolithic) 新石器革命

about 10,000 years ago: **domestication** of plants and animals, in several hearths independently – and the start of permanent settlement

second 第二次农业革命

1600s–1800s, alongside the Industrial Revolution: crop rotation, selective breeding, mechanisation – freeing labour for the new cities

Green Revolution 绿色革命

mid-1900s: high-yield seeds, fertilisers, pesticides and irrigation. Food output rose enormously

its cost

dependence on chemical inputs and irrigation water, lost crop diversity, and gains that went mostly to larger farms

Each revolution let **fewer** people feed **more**. That single trend explains urbanisation, industrialisation and the modern countryside.

2

Spatial organisation

Production regions

- **Shifting cultivation** 迁移农业, **pastoral nomadism** 游牧 (subsistence).
- **Plantation** 种植园, **market gardening** 商品园艺 (commercial).
- **Monoculture** 单一栽培 is efficient but risky.



Plantations specialise for export markets

What farming a place does, and why it pays to

the two controls

climate decides what *can* grow; level of development decides what is worth growing

subsistence 自给农业

grown to feed the family – dominant in lower-income regions

commercial agriculture 商品农业

grown for sale – dominant in higher-income regions

intensive 集约 vs extensive 粗放

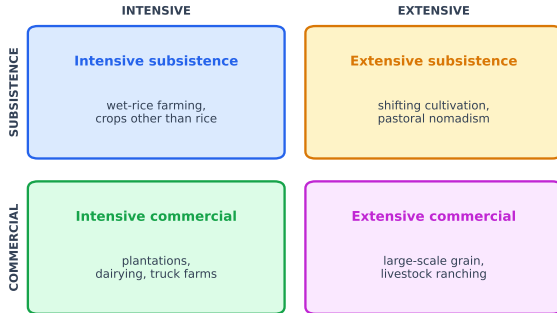
much labour or capital on little land, against little on a lot

bid-rent theory 竞租理论

land near the market costs more, so it *must earn more per hectare* – which forces the most intensive use to the centre

Bid-rent is the economic engine underneath von Thünen's rings, and the same idea reappears in the urban unit as the CBD land-value gradient.

Agricultural Production Regions



AP HuG - U5 - Agriculture classified by intensity and purpose (2x2)

Two axes – how much labour and capital go in per unit of land (intensive vs extensive), and who the food is for (subsistence vs commercial)

The Von Thünen model

- Land use rings a central market, driven by **transport cost** 运输成本.
- Perishable/heavy goods near market; cheap-to-move goods far out.
- Assumes flat, uniform land – refrigeration and roads break the rings.

Von Thünen: what the rings actually say

the centre

the **market** – a single city that buys everything

the arrangement

land use forms **concentric rings** 同心圓 around it

ring 1

dairy and market gardening – **perishable**, so it must be close

ring 2

forest, historically for fuel and timber – **heavy**, so transport cost dominates

rings 3–4

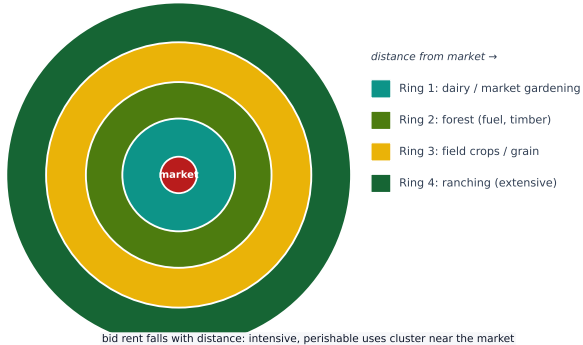
grain, then livestock ranching – durable and cheap to move per unit value

the assumption

a flat, uniform plain with one transport cost – so a navigable river distorts the rings into a lobe

Two forces set every ring: **perishability** and **transport cost per unit value**. Name both and the model explains any commodity you are given.

Perishable



Perishable, heavy, or intensive products locate near the market; extensive uses locate farther out

Worked example – reading the rings

Von Thünen puts dairy beside the market and grain far out. Wheat is worth far less per tonne than milk – so why does wheat get the land?

Rent is what a crop can pay for land, and dairy loses most from distance – milk spoils and is heavy, so its cost rises steeply. Dairy therefore outbids everything near the market; wheat, cheap to move and slow to spoil, still profits far out.

The rings are set by transport cost per km, not crop value. Refrigerated trucks flatten dairy's curve – which is exactly why real cities no longer show clean rings.

3

Global and consequences

The global system

- Food moves through global supply chains.
- **Export dependence** 粮食出口依赖 on one crop is risky.
- **Fair trade** 公平贸易 pays producers a fairer price.

Farming is now a global supply chain

agribusiness

农业综合企业

links farms to the seed, machinery, processing and retail companies around them – the farm is one step, not the whole business

export commodities
出口商品

many countries specialise in a few – coffee, cocoa, soy – which leaves them **dependent on world prices** they do not set

commodity chains
商品链

each step adds value, and most of it is added **after** the produce leaves the growing country

fair trade 公平贸易

an attempt to return more of that value to the grower

A country exporting raw beans and importing chocolate is exporting cheap and importing expensive. That asymmetry is the core of the dependency argument in unit 7.

Consequences and challenges

- **Soil degradation** 土壤退化, water **pollution** 污染, **deforestation** 森林砍伐.
- **Food deserts** 食物荒漠, the **GMO** 转基因 debate, local-food and organic movements.
- Women do much subsistence farm work but hold weaker land rights.



Intensive farming reshapes land and water

What modern agriculture costs

environmental

soil erosion, fertiliser pollution of water, biodiversity loss, **desertification** 荒漠化, greenhouse-gas emissions

economic and social

small family farms lost, rural depopulation, and open questions about **food security** 粮食安全 and **GMOs** 转基因生物

land-use change

suburbanisation 郊区化 and urban growth eat farmland at the city edge – the most productive land is often the first paved

women's labour

in much of the developing world women do the majority of farm work, especially subsistence farming, yet **own little of the land**

the response

organic farming, conservation tillage, and secure land rights for the people who actually farm

It feeds billions – state that before the criticism. The exam rewards a balanced answer, not a one-sided one.

Key points

Farming: **subsistence/commercial, intensive/extensive**

The **Green Revolution**
raised yields at a cost

Von Thünen: transport
cost sets land-use rings

Agriculture drives **soil, water, and forest** change

Worked example – the command word is the question

“Describe the concept of an early hearth of domestication.” (real AP question)

“A place where people first domesticated a wild plant or animal into a farmed variety, and from which that farming practice then spread to other regions.”

Describe wants **more than a definition** – give the key features (where it began **and** that it spread) – but **not** the cause-and-effect “Explain” demands.

Exam tips

- Classify farming on two axes at once: **subsistence** or **commercial**, and **intensive** or **extensive**.
- Drive every **Von Thünen** answer with **transport cost** and the perishability of the product.
- Weigh the **Green Revolution**: higher yields against costly inputs, environmental harm, and uneven reach.
- Name the survey system (**long-lot**, **township-and-range**, **metes-and-bounds**) from the field shape.
- Connect farming to its consequences: **soil degradation**, water **pollution**, and **deforestation**.

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Recap

Unit 5 – key takeaways

1

Axes

subsistence/commercial and
intensive/extensive

2

Von Thünen

transport cost and perishability

3

Green Revolution

yields vs costly inputs, harm,
uneven reach

4

Survey

long-lot, township-and-range,
metes-and-bounds

Check yourself

- 1 Why does Von Thünen put dairy nearest the market?
- 2 What is an early hearth of domestication?
- 3 Intensive or extensive: high input per hectare?
- 4 Name one consequence of the Green Revolution.

Answers 1. it is perishable and costly to transport 2. where a species was first farmed, and spread from 3. intensive 4. higher yields, but more inputs and inequality