

Agriculture and Rural Land-Use Patterns and Processes

AP Human Geography

Introduction to Agriculture

Agriculture 农业 is the deliberate growing of crops and raising of animals for food and other products. A first big split:

- **Subsistence agriculture** 自给农业 — farming to feed the farmer's own family, common in less-developed regions.
- **Commercial agriculture** 商业农业 — farming to sell for profit, common in developed regions and often large-scale and mechanised.

Farming also varies by **intensity**: **intensive** 集约 farming uses a lot of labour or money on a small area (rice paddies, market gardening); **extensive** 粗放 farming uses little input over a large area (ranching, shifting cultivation).

The two photos below are the two ends of the first split — one machine feeding a market versus one person feeding a family:



Commercial agriculture: one combine harvester cuts a huge wheat field with almost no labour, growing grain to sell



Subsistence agriculture: a farmer works a small plot by hand with a hoe, mainly to feed the family

Settlement Patterns and Survey Methods

How farmers settle the land leaves a lasting pattern.

- **Clustered (nucleated)** 集聚式 settlements group homes together; **dispersed** 分散 settlements spread them out; **linear** settlements follow a road or river.
- **Survey methods** divide the land: the **metes-and-bounds** system uses natural features; the **township-and-range** system uses a grid of squares; the **long-lot** system gives each farm a thin strip reaching a river or road.

Agricultural Origins and Revolutions

Farming began in a few **hearths** and spread by diffusion, then was transformed by three revolutions.

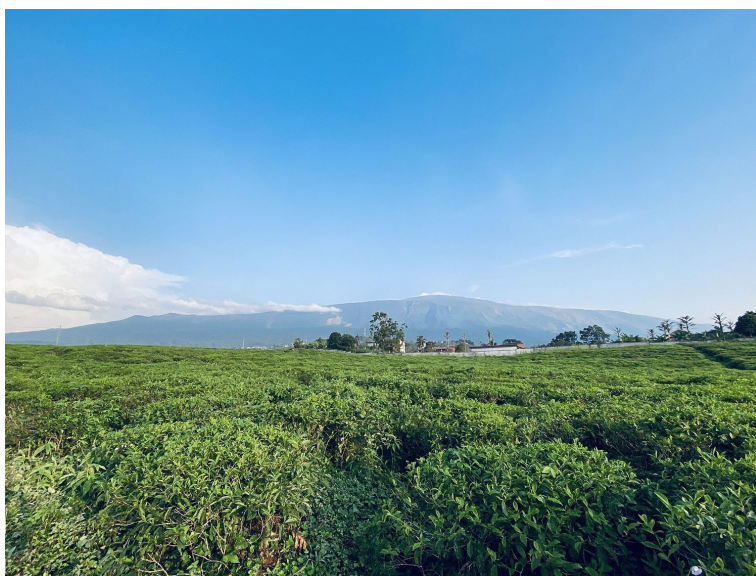
- The **First (Neolithic) Agricultural Revolution** 新石器农业革命 was the original domestication of plants and animals, letting people settle in one place.
- The **Second Agricultural Revolution** 第二次农业革命 used the tools of the Industrial Revolution (machines, better transport, crop rotation) to raise output and feed growing cities.
- The **Green Revolution** 绿色革命 (mid-1900s) introduced high-yield seeds, fertilisers, pesticides, and irrigation — hugely increasing food output, though at an environmental and social cost.

Worked example (a real AP exam question). “Describe the concept of an early hearth of domestication.” (2023) A full-mark answer: “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.” The command word **Describe** wants more than a one-word definition — give the key features (where domestication began **and** that it spread) — but it does not require the cause-and-effect reasoning that “Explain” demands.

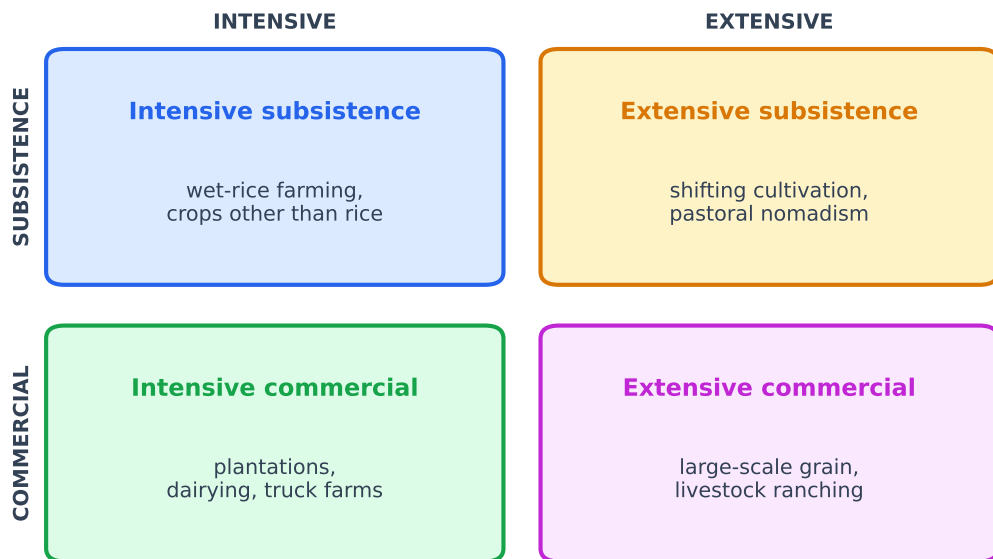
Agricultural Production Regions

The type of farming in a place depends on **climate** and **level of development**.

- Tropical regions favour **shifting cultivation** 迁移农业 (slash-and-burn) and plantation crops; dry regions favour **pastoral nomadism** 游牧 (herding).
- Developed regions have **mixed crop and livestock**, **dairying**, and large **commercial grain** farms.
- **Bid-rent theory** 竞租理论 explains why land close to a market is used more intensively: it is more expensive, so it must earn more per hectare.



A tea plantation 种植园: a single cash crop grown in neat rows over a large area, typical of tropical commercial farming

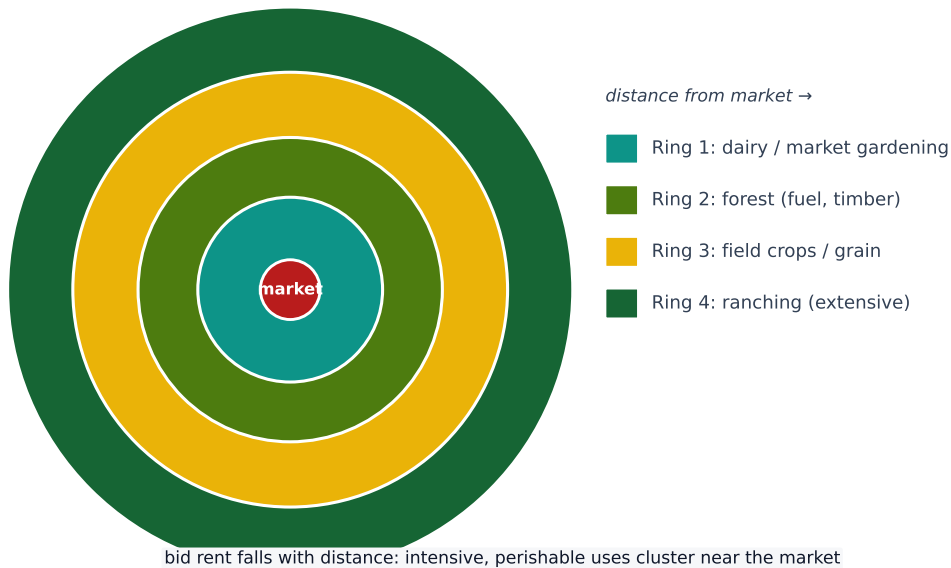


AP HuG · U5 · Agriculture classified by intensity and purpose (2x2)

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)

Spatial Organization and the Von Thünen Model

The **von Thünen model** 冯·杜能模型 (1826) explains what farmers grow **where**, based on **transport cost** and **distance to market**.



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

- At the centre is the **market** (a city). Around it, land use forms **concentric rings**.
- **Ring 1** — market gardening and dairying (perishable, must be near market).
- **Ring 2** — forest (heavy firewood, costly to move, in his day).
- **Ring 3** — field crops and grain (less perishable).
- **Ring 4** — ranching (extensive, low value per hectare, can be far away).

The model assumes a flat, uniform plain with one market. Real regions bend the rings because of roads, rivers, terrain, and refrigeration — but the core idea, that **transport cost shapes land use**, still holds.

The Global System of Agriculture

Modern farming is a **global supply chain** 全球供应链.

- **Agribusiness** 农业综合企业 links farms to seed, machinery, processing, and retail companies.
- Many countries specialise in a few **export commodities** 出口商品 (coffee, cocoa, soy), which can make them dependent on world prices.

- **Fair trade** 公平贸易 and local-food movements are responses to the inequalities of this global system.

Consequences and Challenges of Agriculture

Modern agriculture feeds billions but creates problems:

- **Environmental:** soil erosion, water pollution from fertiliser, loss of biodiversity, **desertification** 荒漠化, and greenhouse-gas emissions.
- **Economic and social:** the loss of small family farms, rural depopulation, and questions about **food security** 粮食安全 and **GMOs** 转基因生物.
- **Land use change:** **suburbanisation** and urban growth eat into farmland at the edge of cities.



Intensive commercial farming: monocultures raise yields but can degrade soil and biodiversity

Women in Agriculture

In much of the developing world, **women** do the majority of farm labour, especially in subsistence agriculture, yet often own little of the land. Their role is central to family food supply. Improving women's access to land, credit, and education raises farm output and, by lowering fertility, links back to the demographic transition.

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**.