

Exercise walk-through

5.7

Spatial Organization of Agriculture

AP Human Geography

Bid rent and competing land uses

Bid-rent theory considers how much users can pay for land at different locations. Agricultural bids depend on expected revenue, production costs and transport costs.

Near a market, reduced transport costs can support higher bids for some products. Expensive land does not itself make every intensive crop profitable.

Compare the competing uses and their cost structures rather than assuming one fixed outcome.

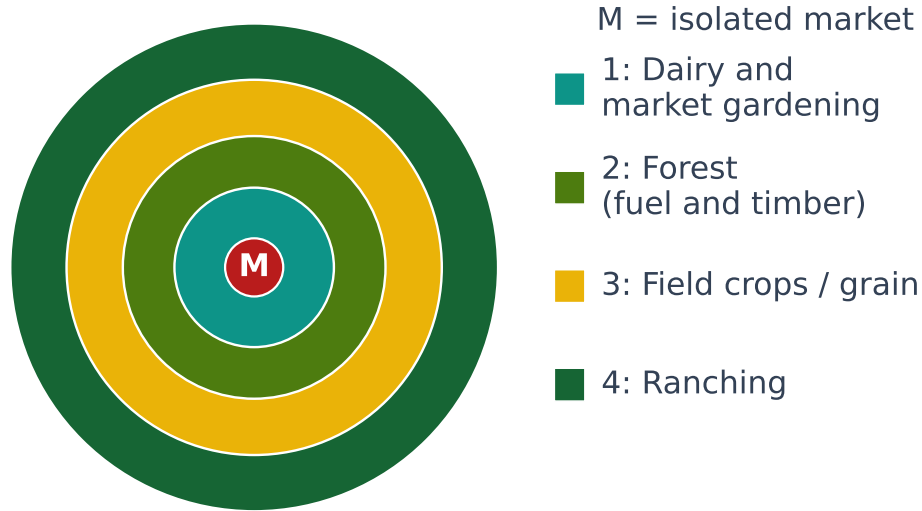
Von Thünen: assumptions before predictions

The simplified **von Thünen model** assumes one isolated market, uniform land and a simplified transport system. Farmers compete for land under those conditions.

Transport costs and perishability help explain the historical arrangement: dairy and market gardening, forest, field crops and ranching.

The rings are a model prediction, not a map that every modern city must match.

Historical land-use rings



Schematic: uniform land and transport; not a modern city map.

Read the rings under the stated assumptions; do not predict land use from distance alone.

Original two-crop model: attempt

Annual bid available for land rent:

$$R = M - td$$

Crop	M (dollars/ha/year)	t (dollars/ha/year/km)
A	600	10
B	360	2

M : margin before transport and land rent; t : transport cost per distance; d : distance in km.
Compare bids at 10 and 50 km. The numbers are invented, not observed dairy-farm data.

Bids at 10 kilometres: worked check

$$R = M - td$$

$$R_A(10) = 600 u - (10 u/\text{km})(10 \text{ km}) = 500 u$$

$$R_B(10) = 360 u - (2 u/\text{km})(10 \text{ km}) = 340 u$$

u = dollars per hectare per year. At 10 km, A can bid more for land. R is the amount available for land rent, not actual profit after paying that rent.

Exercises 2.1-2.2

2.1 Define agribusiness.

[2]

2.2 Explain economies of scale in commercial farming.

[2]

Exercises 2.1-2.2

2.1 Define agribusiness.

[2]

2.1

- the large-scale commercial business of agriculture integrating production, processing, and distribution

2.2 Explain economies of scale in commercial farming.

[2]

2.2

- producing in large quantities lowers the cost per unit of output

Exercise 2.3 (a)

2.3 A huge farm plants only one crop across all its land.

(a) Name this practice.

[1]

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[1]

(a)

- monoculture

Exercise 2.3 (b)

2.3 A huge farm plants only one crop across all its land.

(b) State one risk it creates.

[1]

Exercise 2.3 (b)

2.3 A huge farm plants only one crop across all its land.

(b) State one risk it creates.

[1]

(b)

- a single pest, disease, or price crash can wipe out the whole harvest

Exercises 3.1-3.2

3.1 The full set of steps linking a farm product to the final consumer is a [1]

☐

A commodity chain

B relict boundary

C gravity model

D long-lot

3.2 Large farms can undercut small farms mainly because of [1]

☐

A higher costs per unit

B economies of scale

C monoculture risk

D distance decay

Exercises 3.1-3.2

3.1 The full set of steps linking a farm product to the final consumer is a [1]

- ☐ A commodity chain
☐ B relict boundary
☐ C gravity model
☐ D long-lot

3.1 A

- farm-to-consumer steps = commodity chain

3.2 Large farms can undercut small farms mainly because of [1]

- ☐ A higher costs per unit
☐ B economies of scale
☐ C monoculture risk
☐ D distance decay

3.2 B

- bulk production lowers cost per unit = economies of scale

Exercise 3.3 (a)

3.3 An agribusiness controls seeds, farming, processing, and shipping.

(a) State one advantage of this integration.

[1]

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3.3 An agribusiness controls seeds, farming, processing, and shipping.

(a) State one advantage of this integration.

[1]

(a)

- lower costs / control of the whole chain / reliable supply

Exercise 3.3 (b)

3.3 An agribusiness controls seeds, farming, processing, and shipping.

(b) State one concern for small independent farmers.

[1]

Exercise 3.3 (b)

3.3 An agribusiness controls seeds, farming, processing, and shipping.

(b) State one concern for small independent farmers.

[1]

(b)

- they cannot compete on price and may be squeezed out