



A-level
ENVIRONMENTAL SCIENCE

Paper 2

7447/2

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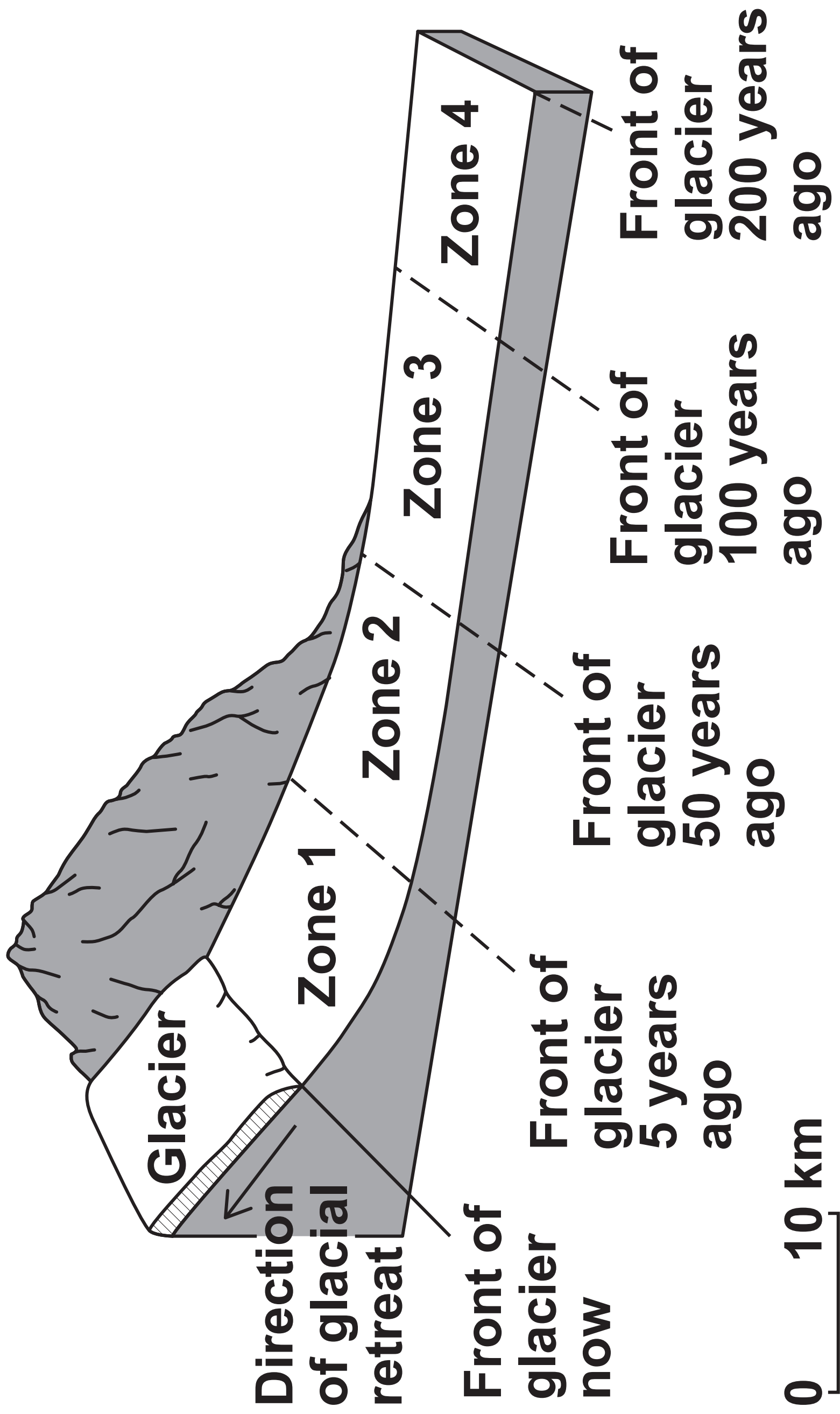
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TABLE 2

Approximate time from retreat of glacier / years	Vegetation type
0–4	Lichens
5	Mosses and short grasses
25	Taller grasses and flowering plants
50	Shrubs
100	Shrubs with small trees
200	Conifer forest

[Turn over]

FIGURE 4



Research scientists wanted to find out the rate of ecological succession on the ground exposed by the retreating glacier.

The scientists used the following method:

- **a transect over 50 km long and 1 km wide was used**
- **the transect extended from the front of the glacier now to the end of Zone 4**
- **sites were sampled every 5 km along the transect**
- **30 quadrats were randomly placed across the 1 km width of the transect at each of the sample sites**
- **the percentage vegetation cover of each species was estimated in each quadrat**
- **the mean of the 30 quadrats at each site along the transect was calculated.**

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TABLE 3

CROP	U VALUE	n
Field A: Bt corn	23	8
Field B: Non-GM corn	26	8

[Turn over]

TABLE 4

Values of n_2		1	2	3	4	5	6	7	8	9	10	11	12
Values of n_1	1								0	0	0	0	1
	2					0	1	1	2	2	3	3	4
	3						1	3	4	4	5	6	7
	4				0		2	5	6	7	8	9	11
	5			0	1		3	6	8	10	12	13	14
	6			1	2		5	6	10	12	14	16	18
	7			1	3		6	8	13	15	17	19	22
	8		0	2	4	6	8	10	15	17	20	23	26
	9		0	2	4	7	10	12	17	20	23	26	29
	10		0	3	5	8	11	14	17	20	23	30	33
	11		0	3	6	9	13	16	19	23	26	33	37
	12	1	1	4	7	11	14	18	20	26	29	33	37

TABLE 5

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FIGURE 5

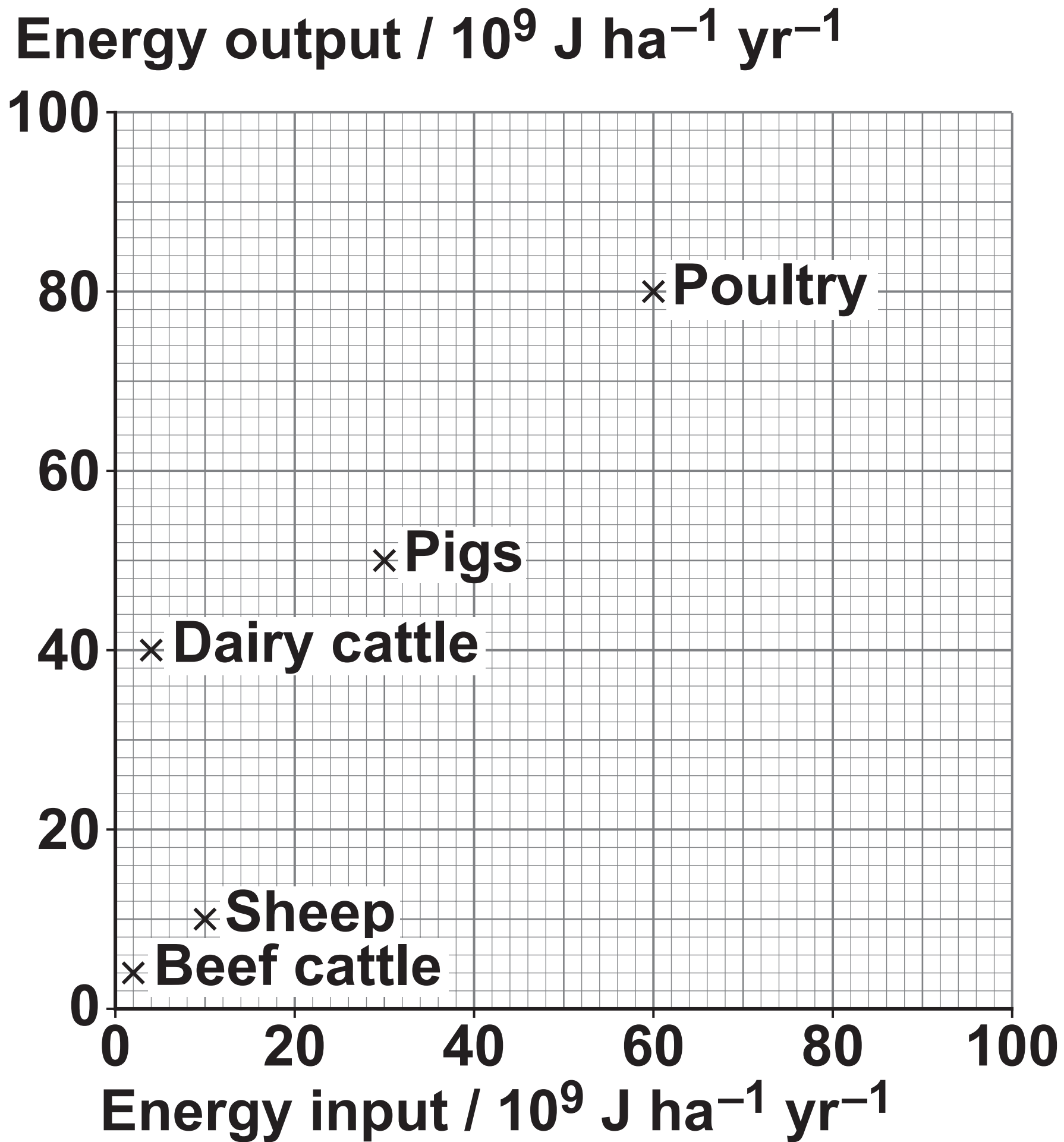


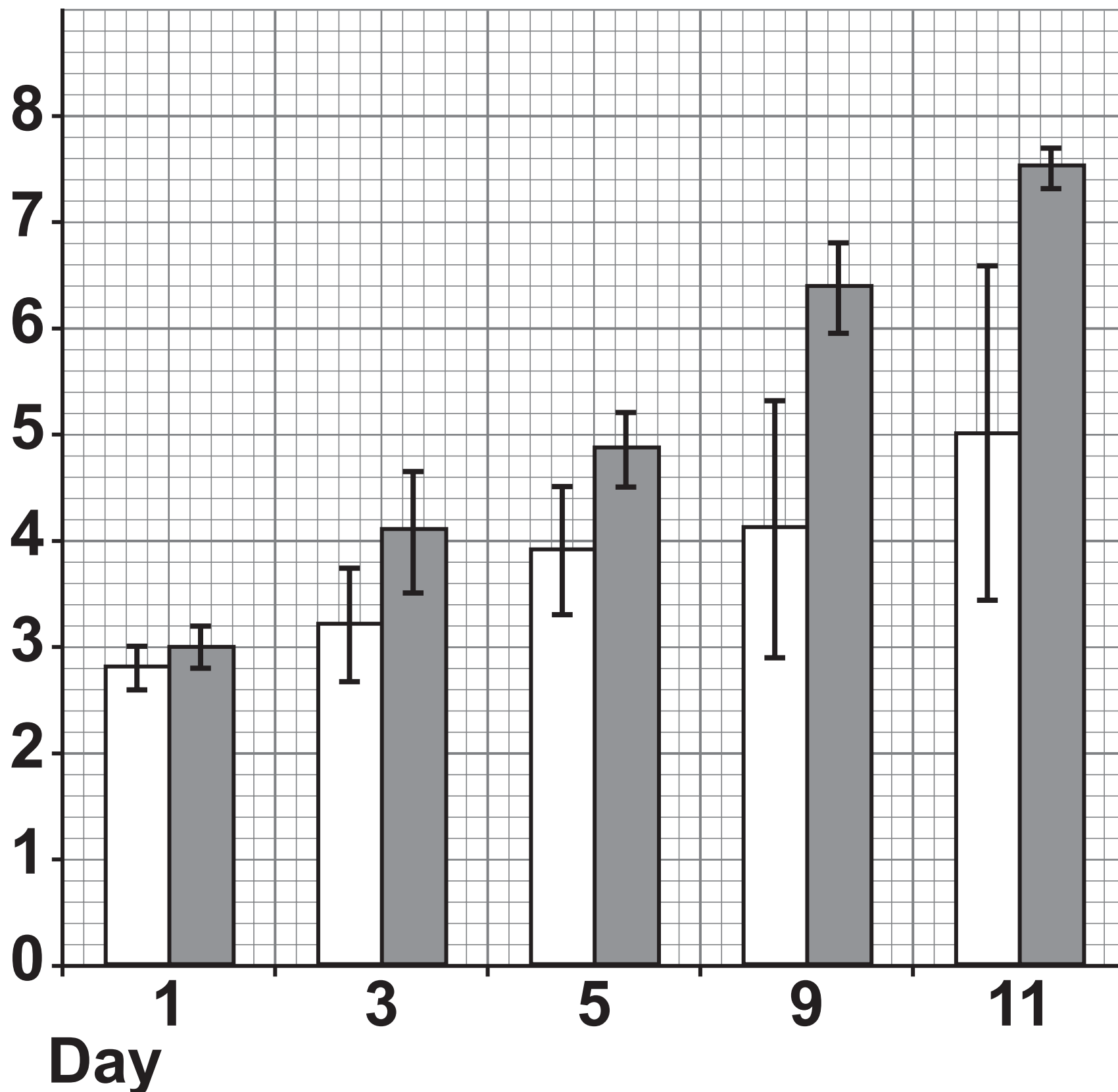
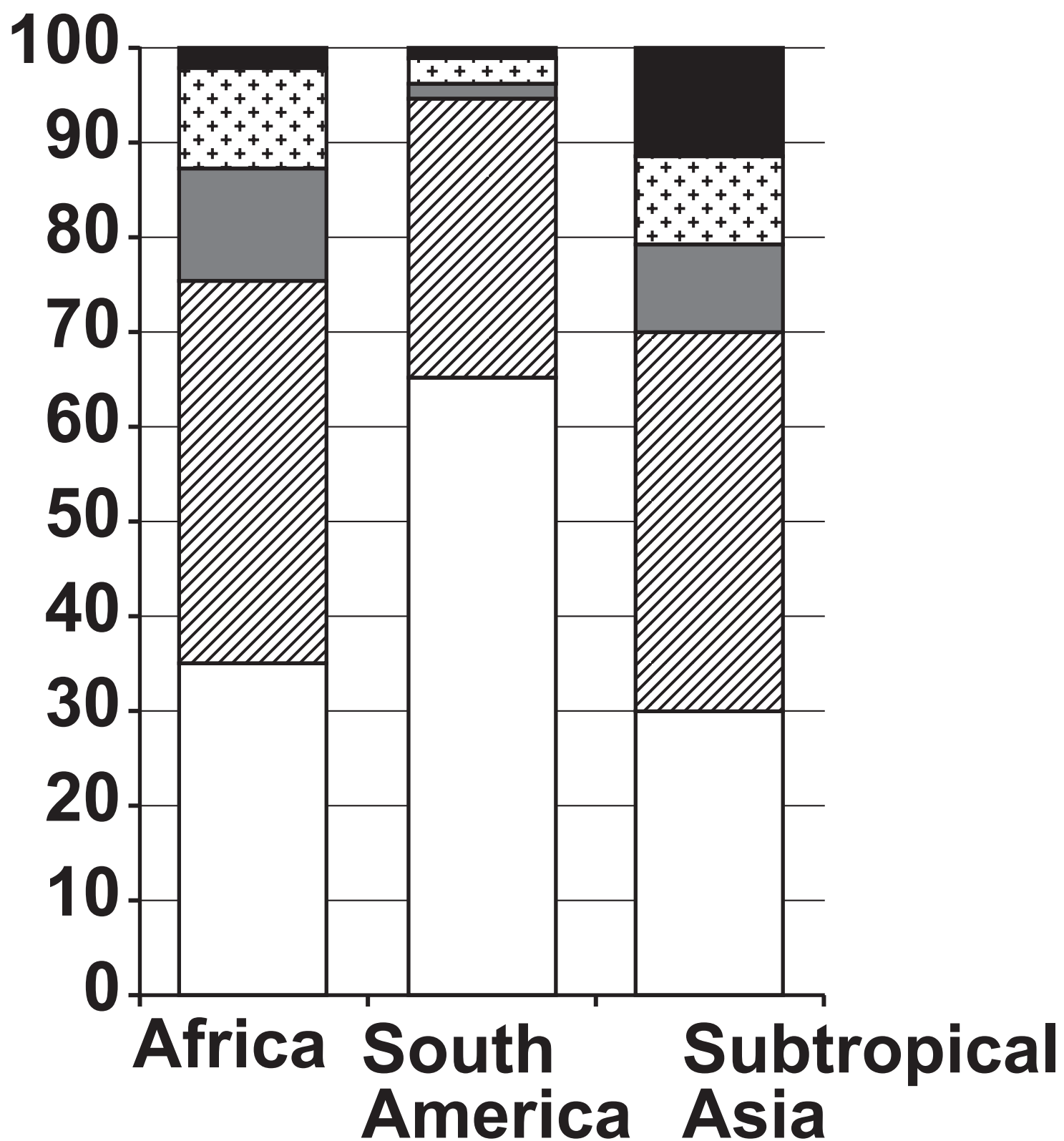
FIGURE 6**Mean mass of caterpillars / mg****KEY** **FIELD A: Bt corn** **FIELD B: non-GM corn** **Standard deviation (+/-2)****[Turn over]**

FIGURE 7

**Percentage (%) of
deforestation**

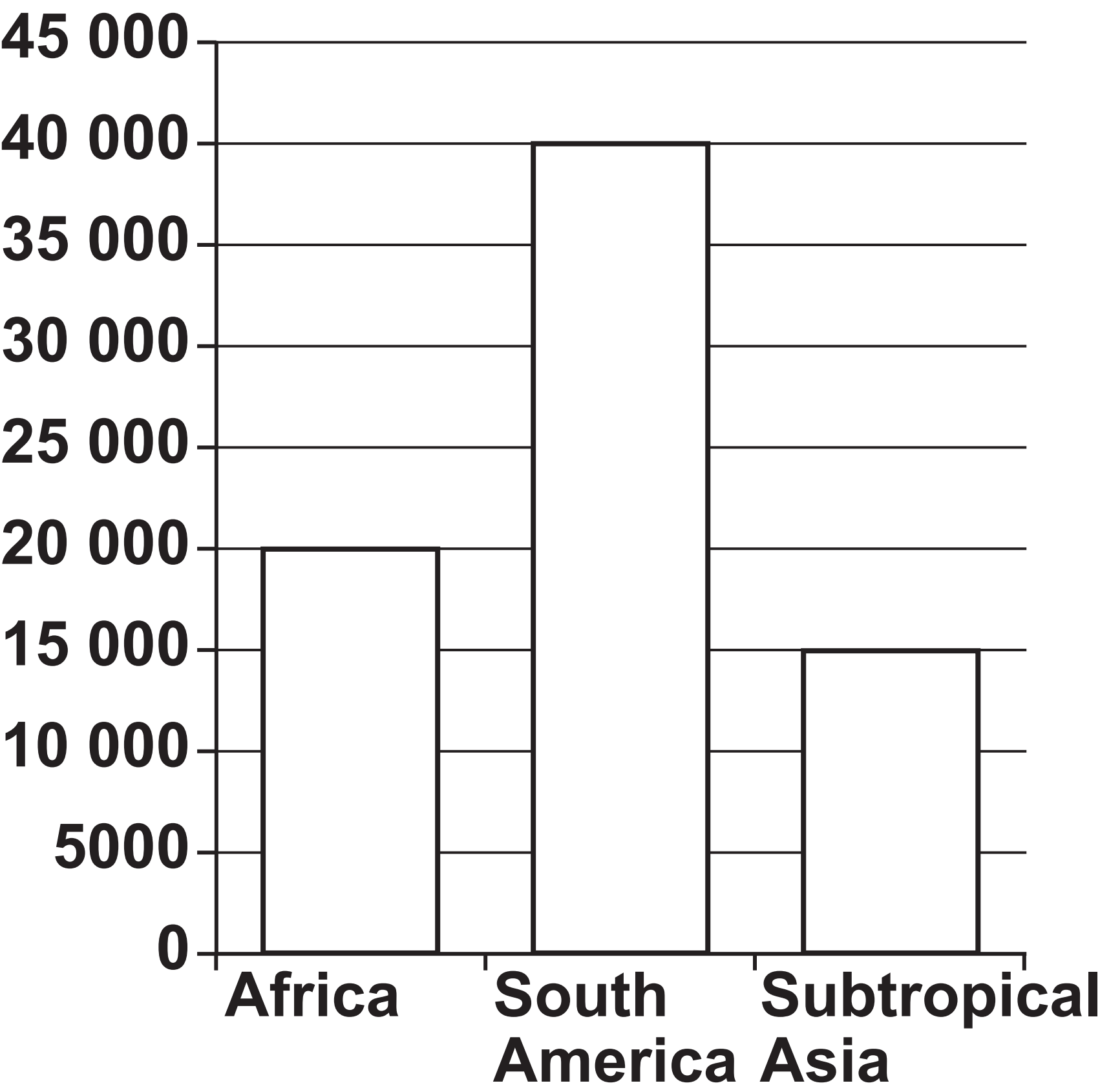


KEY

- | | |
|---------------------------|------------------|
| ■ Urban expansion | ▤ Infrastructure |
| ▨ Subsistence agriculture | ■ Mining |
| □ Commercial agriculture | |

FIGURE 8

Rate of deforestation
/ km² / y⁻¹



END OF FIGURES

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