

20. Human influences on ecosystems

20.1 Food supply

Paper 3 and 4

Question Paper

Paper 3

Questions are applicable for both core and extended candidates

- 1 Fig. 6.1 is a photograph of intensive egg production on a chicken farm.



Fig. 6.1

- (a) In 1905, each chicken produced a mean of 120 eggs per year. In 2021, each chicken produced a mean of 300 eggs per year.

Calculate the percentage increase in mean egg production per year.

Space for working.

.....% [2]

- (b) Egg production has increased due to selective breeding and intensive farming.

Describe the **disadvantages** of intensive livestock farming.

.....

.....

.....

.....

.....

.....

..... [3]

- 2 (a) Humans have developed modern farming methods to increase food production.

Explain how the use of herbicides and chemical fertilisers has increased food production.

.....

.....

.....

.....

.....

.....

.....

.....

..... [4]

(b) Fig. 8.1 shows intensive farming of chickens.



Fig. 8.1

State **three** disadvantages of intensive livestock production.

1

.....

2

.....

3

.....

[3]

- 3 (b) Animals can be farmed intensively.

State **two** advantages of intensive livestock production.

1

.....

2

.....

[2]

4 (a) Modern technology has improved food production.

Table 7.1 shows some of the ways that food production has been improved.

Complete Table 7.1 by writing an example for each description.

Table 7.1

example of technology	description of how it has improved food production
	used to farm larger areas of land
	used to improve growth in plants by providing nutrients
	used to improve yield by removing animal pests
	used to remove competition by weeds

[4]

(b) Intensive livestock production is used to improve food production.

Describe the negative effects of intensive livestock production.

.....

.....

.....

.....

.....

.....

.....

..... [3]

- 5 Fig. 9.1 is a photograph of a fish farm. Fish are kept in small cages in the sea and are fed. This is an example of intensive livestock production.



Fig. 9.1

- (a)** Describe the negative impacts of intensive livestock production.

.....

.....

.....

.....

.....

.....

..... [3]

- (b)** Define the term sustainable resource.

.....

.....

..... [2]

(c) Circle **two** examples of sustainable resources from the list.

coal **fish stocks** **natural gas** **crude oil** **forests** [1]

[Total: 6]

6 (a) Complete the sentences about human influences on ecosystems.

Use words from the list.

Each word may be used once, more than once, or not at all.

deforestation	fertilisers	herbicides
insecticides	livestock	monoculture
pectinases	pollinate	pollute

When one type of crop of the same species is grown on a large scale it is called a

..... .

Chemical add mineral ions to the soil to increase the yield of crops.

Weeds can be killed by

Crop damage by insects can be reduced by the use of One

disadvantage is that this kills useful insects which flowers.

[5]

- 7 Fig. 7.1 is a photograph of a large-scale monoculture of soybeans which are a crop plant.



Fig. 7.1

- (a) Describe the disadvantages of large-scale monocultures.

.....

.....

.....

.....

.....

.....

..... [3]

8 (a) Modern technology has increased food production.

The boxes on the left show types of modern technology.

The boxes on the right show how modern technology has improved production.

Draw **five** lines to link the type of modern technology with the way in which it has improved food production.

modern technology

improvement in food production

agricultural machinery

able to use larger areas of land

chemical fertiliser

improve desired features in crops and livestock

herbicide

kills animal pests that damage crops

insecticide

provides nutrients to increase yield

selective breeding

reduce competition with weeds

[4]

(b) Describe **two** negative impacts to an ecosystem of intensive livestock production.

1

.....

2

.....

[2]

[Total: 6]

- 9 (e) Improvements in food production have allowed human populations to increase.

Describe how modern technology has increased the production of crop plants.

.....

.....

.....

.....

.....

.....

.....[3]

- 10 (a) Some animals are farmed intensively.

Describe the negative impacts to an ecosystem of intensive livestock production.

.....

.....

.....

.....

.....

.....

.....

..... [4]

- (b) State why fertilisers, herbicides and insecticides are used in farming.

fertilisers

.....

herbicides

.....

insecticides

..... [3]

Paper 4

Questions are applicable for both core and extended candidates

- 11 Many crop plants are grown as monocultures.

Fig. 6.1 shows the destruction of a monoculture of maize as a result of drought.



Fig. 6.1

- (a) Describe the negative impacts to an ecosystem of large-scale monocultures, such as the one shown in Fig. 6.1.

.....

.....

.....

.....

.....

.....

.....

..... [3]

- 12 Some crop farmers use herbicides on their fields.

Fig. 4.1 shows a farmer spraying a rice crop with herbicides.



Fig. 4.1

- (a)** Herbicides kill weeds.

Explain why farmers use herbicides.

.....

.....

.....

.....

..... [2]

- 13 (c) Intensive livestock production can be damaging to natural ecosystems.

Fig. 3.3 shows intensive farming of chickens.



Fig. 3.3

- (i) Describe the negative impact on an ecosystem of the intensive production of livestock, such as chickens.

.....

.....

.....

.....

.....

.....

.....

..... [3]

- 14 (c) Some farmers spray their crops with insecticides to kill pests such as aphids.

Explain the benefits of killing pests.

.....

.....

.....

.....

..... [2]