

GCSE Biology B (Twenty First Century Science)
J257/02 Breadth in Biology (Foundation)

Question Set 2

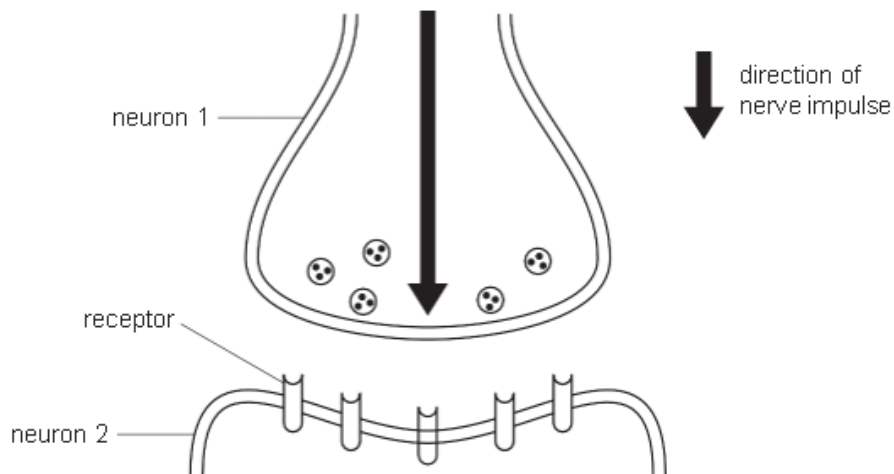
1 Insecticides called neonics are widely used by farmers.

Neonics kill insect pests that live on crop plants.

(a) Neonics block receptors in synapses in the nervous system of an insect.

This stops the transmission of a nerve impulse across the synapse.

The diagram shows these receptors in a synapse.



Explain how neonics blocking receptors in a synapse stops the transmission of a nerve impulse across the synapse.

[3]

(b) Explain why a farmer would want to use neonics to kill insects that live on their crops.

[2]

(c) One farmer grows a crop called oilseed rape.

Honey bees feed on the oilseed rape, as shown in the food chain in **Fig. 1.1**.

The measurements below the food chain show the amount of biomass in each trophic level.

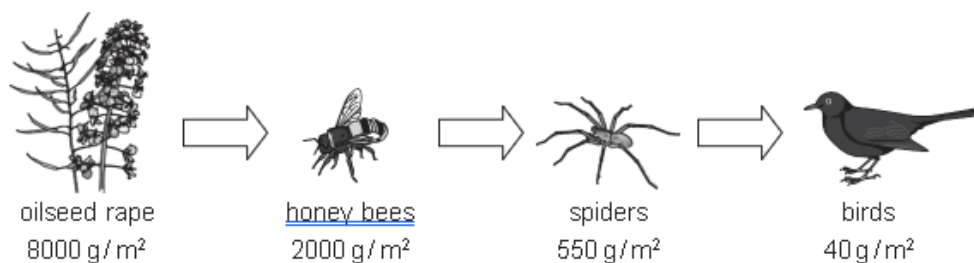
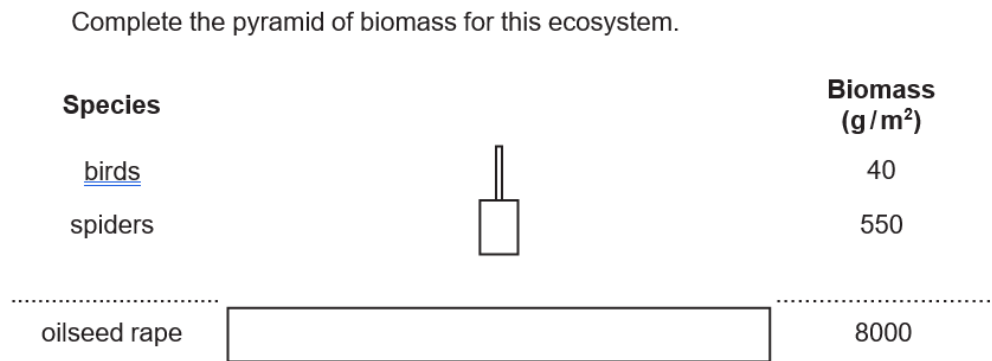


Fig. 1.1

- (i) A food chain is one way of showing the feeding relationships in this ecosystem. A pyramid of biomass is another way.

Complete the pyramid of biomass for this ecosystem.



[2]

- (ii) Calculate the efficiency of biomass transfer from the **oilseed rape** to the **honey bees**.

Give your answer as a percentage.

Efficiency =%

[2]

- (d) Research studies have suggested that use of neonics on crops can cause honey bee populations to decrease.

Other studies have linked neonics to decreases in bird populations.

- (i) To try to protect honey bees, the European Union banned the use of neonics on flowering crops.

Suggest why the ban applied to **flowering** crops.

[1]

- (ii) Write down **two** ways in which use of neonics could have caused a decrease in the numbers of birds.

[2]

- (iii) Do you support the continued use of neonics on flowering crops?

Justify your answer.

[3]

Total Marks for Question Set 2: 15

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