AQA GCSE Combined Science - Trilogy | 8464

SPECIFICATION POINT 4.6.2.3

Selective breeding

Past-paper questions

Tier	**Higher**
Question groups	**2**
Available paper years	**2018–2023**

Using this booklet

1. Answer the questions in order and show your working.
2. Original question numbers and marks are retained.
3. Print at actual size (100%) for measuring questions.
4. Use the companion answer booklet to check your work.

Name: _____ **Date:** _____

Whole questions are retained for context, so some parts assess other specification points. Current and legacy sources are labelled. Continue on extra paper if needed.

4.6.2.3 Selective breeding

Question 01

June 2018 | 8464/B/2H | Original Q5

0 5 Read the following.

> In the 1950s farmers in India could not grow enough rice to feed the rapidly increasing population.
>
> At the International Rice Research Institute (IRRI) scientists began a selective breeding programme with 10 000 different varieties of rice plants.
>
> In 1966 the IRRI produced a new variety called IR8 which gave a yield of up to ten times the traditional varieties. IR8 has short stems and large rice grains.
>
> IR8 was grown by farmers all over India so people had enough to eat.

0 5 . 1 The IR8 variety of rice was produced by selective breeding.

Describe the steps the scientists would have taken to produce IR8

[4 marks]

4.6.2.3 Selective breeding

Question 01 · continued

0 5 . 2 The IRRI has now developed several new varieties of genetically modified (GM) rice plants.

Some people in India agree and some people disagree with GM varieties of rice being grown.

Explain why.

[4 marks]

8

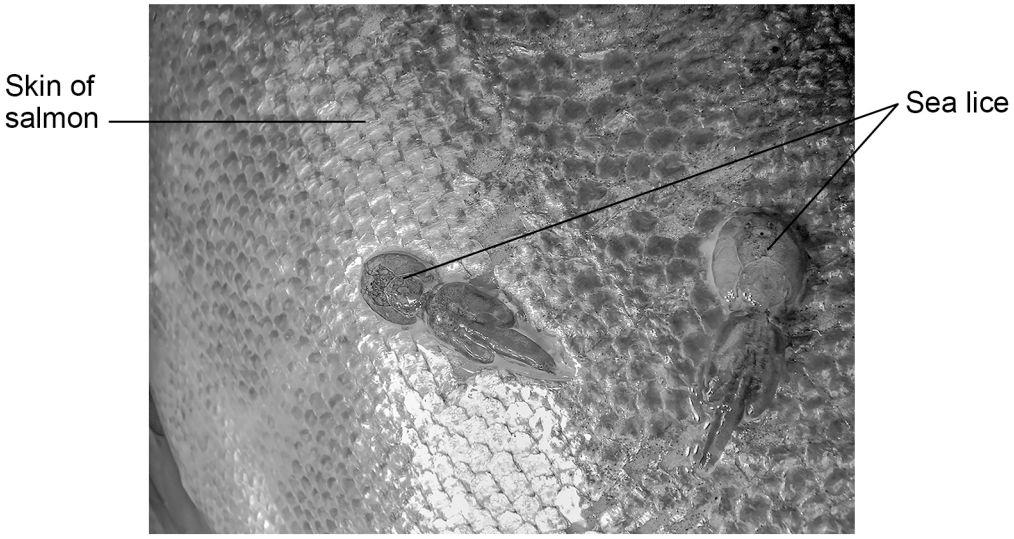
4.6.2.3 Selective breeding

Question 02

0 4 Sea lice are small animals that feed on the skin and blood of salmon fish.

Figure 3 shows sea lice attached to the skin of a salmon, *Oncorhynchus keta*.

Figure 3



0 4 . 1 What is the genus name of salmon?

[1 mark]

0 4 . 2 Which domain are sea lice classified in?

[1 mark]

4.6.2.3 Selective breeding

Question 02 · continued

0 4 . 3 Some salmon have genes that result in fewer sea lice attaching to the skin.

Describe how fish farmers can selectively breed salmon that sea lice **cannot** attach to.

[3 marks]

0 4 . 4 Explain the advantages to salmon farmers of producing salmon that do **not** have sea lice attached to their skin.

[3 marks]

Question 4 continues on the next page

4.6.2.3 Selective breeding

Question 02 · continued

0 4 . 5 Explain the **disadvantage** of selectively breeding salmon.

Do **not** refer to cost or to time in your answer.

[2 marks]

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