

## **GCSE Biology A (Gateway)**

**J247/02** B4-B6 and B7 Foundation (Foundation Tier)

### **Question Set 7**

1

In many countries, people rely on bananas for food.

Black sigatoka is a disease of banana plants.

The disease is caused by a fungus.

- (a) Banana plants grown by farmers are usually produced asexually. This process uses mitosis. This means that, if one banana plant dies of black sigatoka, all the bananas can die.

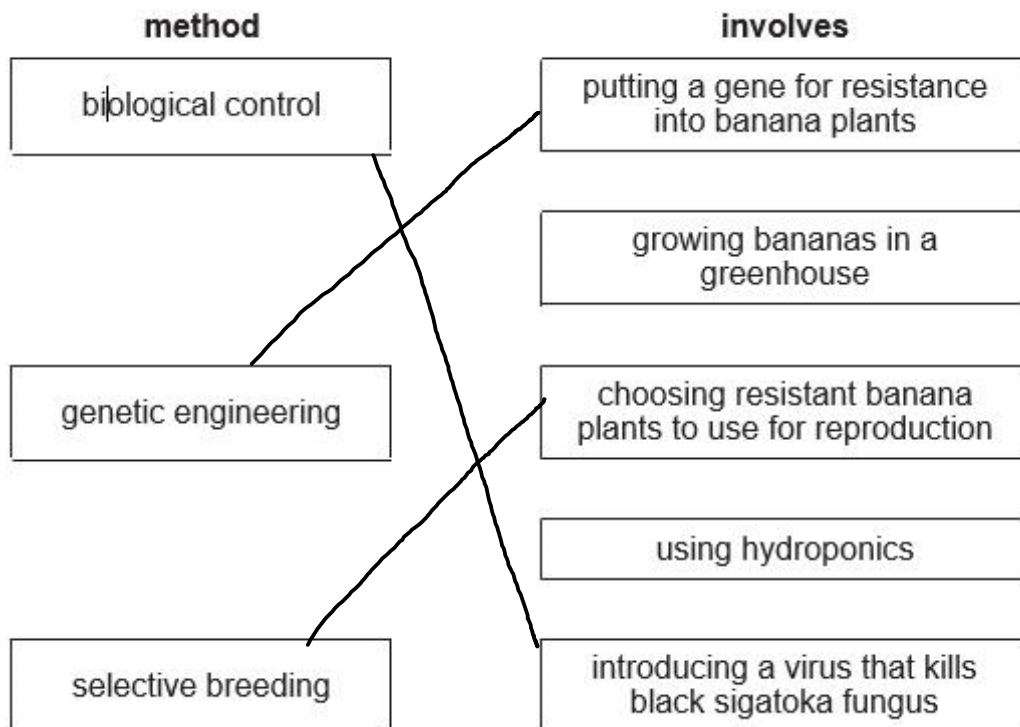
Explain why.

*All genetically identical.*

[1]

- (b) The food security of bananas could be improved using different methods.

Draw a straight line to join each **method** to a step that it **involves**.



[3]

- (c) (i) A type of pesticide called a fungicide can be used to kill the fungus.

Scientists are investigating how well a fungicide works. They also want to see if the fungicide works better if they add a chemical called a sticking agent. This helps the fungicide stick to the banana leaves.

The scientists grow banana plants in four blocks.

The table shows the treatments each block is given.

| Block | Treatment |                |
|-------|-----------|----------------|
|       | Fungicide | Sticking agent |
| A     | ✓         | ✓              |
| B     | ✓         | X              |
| C     | X         | ✓              |
| D     | X         | X              |

Why did the scientists include the treatments given to block C and block D?

Block C ..... So they could see if sticking agent alone killed the fungus

Block D ..... to compare the action of other treatments with no treatment. So as a control.

[2]

- (ii) After a few months the scientists gave the plants in each area a disease rating. The higher the disease rating the more disease present.

| Block | Disease rating |
|-------|----------------|
| A     | 20             |
| B     | 35             |
| C     | 45             |
| D     | 60             |

What conclusions could the scientists make from this study?

[3]

Fungicide and sticking agent best at killing fungus  
Fungicide on its own still killed the fungus but less than with sticking agent. Sticking agent does kill the fungus but less than fungicide.

**Total Marks for Question Set 7: 9**

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