

3 Scientists developed genetically modified (GM) maize.

Fig. 3.1 shows the mass of GM maize grown in one country from 2000 to 2015.

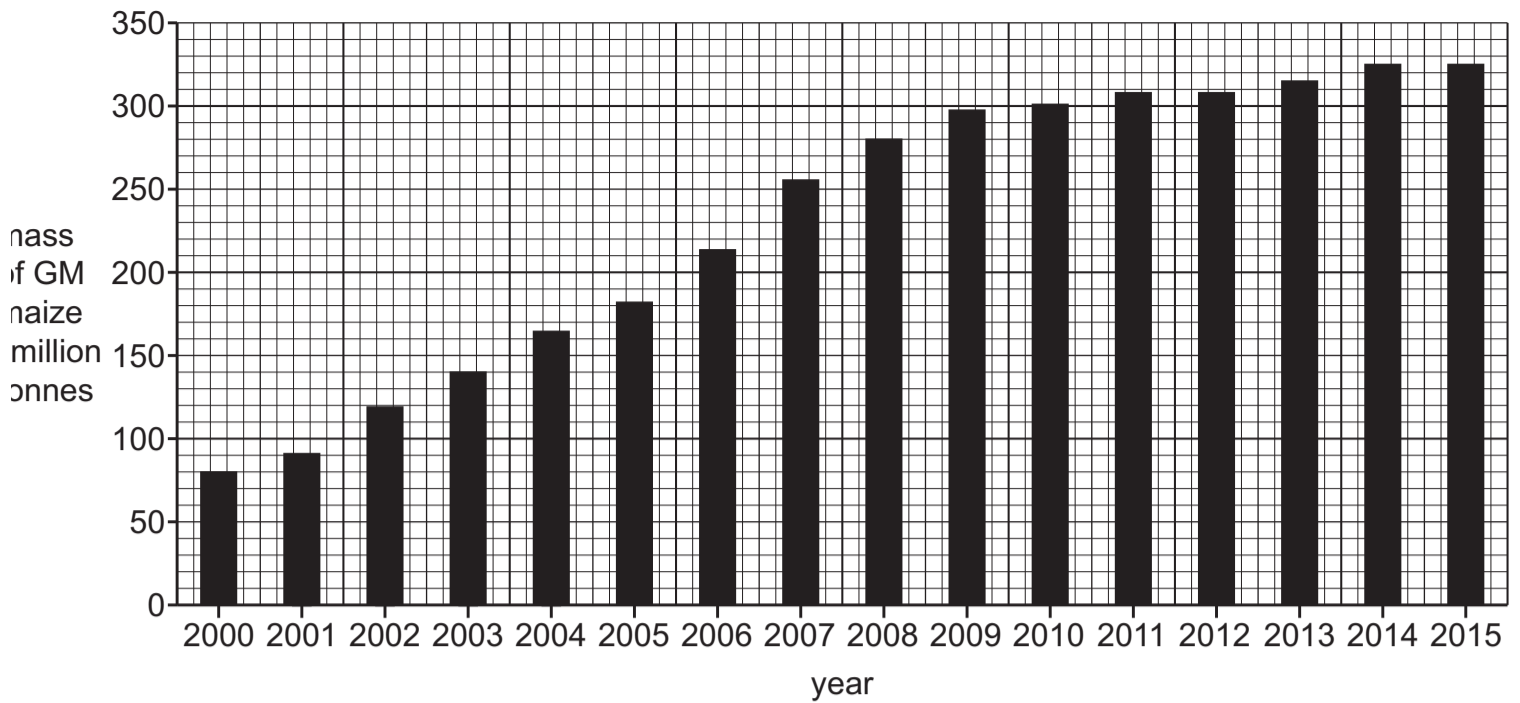


Fig. 3.1

(a) Calculate the percentage increase in the mass of GM maize grown between 2000 and 2015.

Give your answer to **two** significant figures.

Space for working.

..... % [3]

(b) To develop GM maize, a gene for producing a natural insecticide was taken from a bacterium and transferred into maize plant cells.

(i) Genes are found at specific positions on a biological molecule.

State the name of this biological molecule.

..... [1]

(ii) Scientists who develop GM crop plants breed them for many generations before allowing farmers to grow the crop plants.

Suggest why scientists breed the GM crop plants for many generations.

.....

 [2]

(iii) Human proteins can also be made using bacteria that have been genetically modified.

Describe how a gene can be transferred from one organism to another using genetic modification.

.....

 [6]

(c) Some people are worried that GM crops could pollinate wild plants.

(i) Suggest how pollination between GM crops and wild plants could be prevented.

.....

 [1]

(ii) State **two** advantages of GM crops **other than** insect resistance.

1
 2 [2]