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Crop plants produce food for humans. Crop plants are often eaten by insects. Farmers can spray chemicals on the crop plants that kills insects that eat them.

Another way to protect the plants is to introduce a gene into the crop plant. The gene, which is found in bacteria, produces a poison that kills the insects.

The plant is called a genetically modified (GM) plant.

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Explain how a plant is made resistant to the insects by genetic modification.

[4 marks]

Cut gene or DNA for producing the poison from bacteria [1]

using an enzyme. [1]

Transfer gene or DNA to plant or plant cells [1]

at early stage of development or when the the plant is a few cells [1]

Some people have concerns about introducing genes into crop plants.

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Give two reasons why people may have concerns about introducing new genes into crop plants.

[2 marks]

Any two from:

Concern about effects on human (health) [1]

Concern about food chain effects or effects on ecosystem [1]

Effect on gene pool [1]

Long term effects not known [1]

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Other than the plant being resistant to insects, give one other advantage of producing a GM crop.

[1 mark]

higher yield / longer shelf life of fruit or vegetables / resistance to pesticides or weed killers / resistance to disease / better tasting / faster ripening [1]