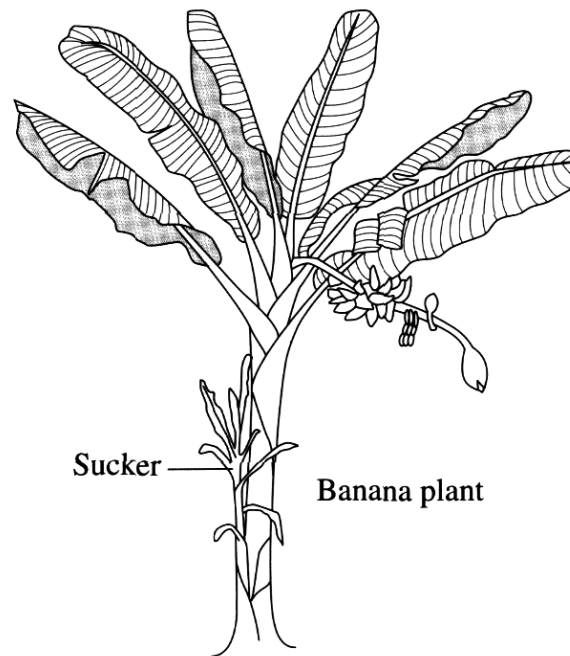


Marks

Question 24 (4 marks)

Traditionally, banana plants in Australia have been propagated asexually by cutting out and planting suckers from the adult plant.

4



There is a growing trend to produce disease-free plants in laboratories through a process of cloning from disease-free tissues from existing plants.

Assess the potential impact of this cloning process on the genetic diversity of banana plants in Australia.

By concentrating on a small sample of genetically superior plants for reproduction, cloning may significantly reduce the genetic diversity of banana plants in Australia. There will be fewer opportunities in a reduced sample of genes for advantageous mutations to occur, reducing the opportunities for the development of a disease-resistant population.

Reduced genetic diversity resulting may also increase the risk of the population as a whole to disease - fewer random mutations allow the development of fewer resistant traits, although this is less marked for bananas as they are grown from genetically-identical cuttings anyway.