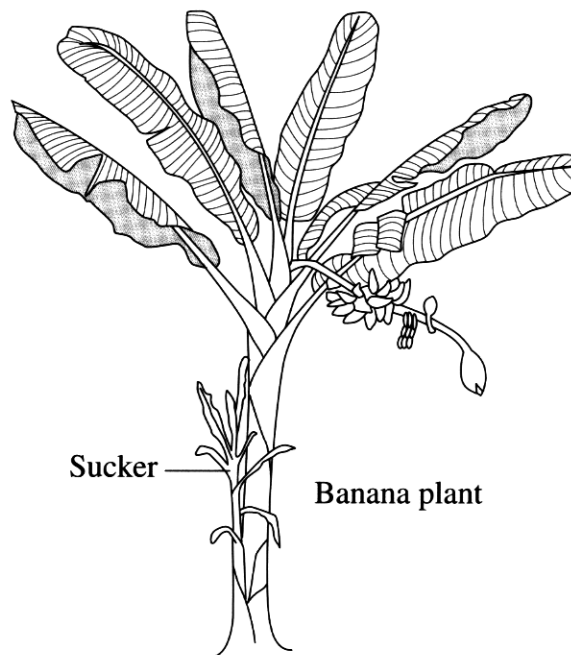


Marks

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.

Cloning produces offspring that are identical to its parent, however cuttings also produce ^{identical} offspring to the parent. In this sense, banana plants in Australia have always been identical to the parent & hence cloning will not change this. However, selectively choosing disease-free plants will decrease the genetic diversity since specific plants will be targeted to be cloned. Although, this will in turn mean that although the genetic diversity of banana plants is ^{slightly} decreased, Australia will be able to produce superior, disease-free banana plants. Hence this cloning process will have an overall positive impact on the ^{genetic diversity of the} ~~genetic diversity of the~~ banana industry of Australia, since diseased plants will no longer be around to spread the disease to other plants.