

1. (a) limited genetic diversity in modern varieties / greater genetic diversity in old varieties / older varieties contain other (useful) alleles/genes;  
old varieties useful for future breeding programmes; 2
- (b) (i) seeds lose viability / will not germinate/develop after long storage; 1
- (ii) preserve variety of alleles / different genotypes;  
maintain genetic variation;  
prevent inbreeding / reduces the chance of homozygosity; 2 max
2. (i) for correct use of sigma;  
numerator = 380 and denominator = 132; 2  
2.87 to 2.9 gains 2 marks  
*(do not allow 2.8 or denominator = 135)*
- (ii) more types of prey found on strawberries; 1
3. (a) cultivation of single species/variety of crop/named crop / one crop grown over a large area; 1
- (b) (i) more space for crop;  
easier to use machines/named machine;  
removes habitat for pests;  
lower labour costs in maintenance;  
less competition with (crop) plants for named resource; 2 max
- (ii) more habitats/niches/food sources/more animal/insect/mammal/  
bird species present/more species diversity/larger food webs/  
more food chains; 2
- [5]**
- [3]**

- (c) food source killed by pesticide;  
insufficient food (for survival)/lack of alternative sources/specialist feeder;

*OR*

pesticide passed through food chain;  
biomagnification/bioaccumulation/concentration higher in top carnivores;

*OR*

stored in fat; released over time;

*OR*

run off/leached into rivers;  
kills aquatic life;

2

*(animals eat pests containing the pesticide gains 1 mark)*

**[7]**