**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 <u>genetic</u> variation;
prevent inbreeding / reduces the chance of homozygosity; 2 max

**[5]**

**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]**

**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

(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]**