

Selective breeding

Q1.(2018)

Answers will be credited according to candidate's deployment of knowledge and understanding of the material in relation to the qualities and skills outlined in the generic mark scheme.

The indicative content below is not prescriptive and candidates are therefore not required to include all the material that is indicated as relevant. Additional content included in the response must be scientific and relevant.

- Select variety A because it has large potatoes ;
- Select variety B because is faster growing and produces many potatoes ;
- Crossbreed variety A with variety B;
- Transfer pollen from flower of variety A to flower of variety B / ORA;
- Grow the new plants
- Select the offspring with the desired characteristics
- Repeat the process over many generations;
- until all offspring show desired characteristics;

Q2.a(2020)

An answer including:

- select large chickens /chicks from larger chickens (1)
- breed together (1)
- repeat over (many) generations / long period of time (1)

Q2.b(2020)

Benefit

- produces more food / fewer chickens needed for the same amount of meat (1)

Risk

- less variation /losing useful genes (from the gene pool) / losing traits which may be desirable in the future / health issues related to larger bodies (1)
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Q2.c(2020)

39 / thirty-nine

Q2.d(2020)

meiosis / meiotic cell division

Q3.(2021)

A description including **two** from:

- {cross / breed} Brahman cattle with Shorthorn cattle (1)
- select the offspring with the desired characteristics and {cross / breed} them (1)
- repeat over many generations (1)

Q4.(2021)

Any **two** from:

- (wheat) plants not damaged (1)
- the spread of the fungus would be reduced
- greater yield / profit (1)
- reduced use of fungicides / pesticides (1)

Q5.a(2023)

characteristics (1)

selective (1)

Q5.b(2023)

C all the DNA of an organism

The only correct answer is C

A is not correct because the genome is not all the cells of an organism

B is not correct because the genome is not all the enzymes of an organism

D is not correct because the genome is not all the structures of an organism

Q5.c(2023)

food security / animals are less dangerous / make jobs easier / companionship / give humans protection

Q6.(2023)

One from advantages:

- (fruit) will have desired qualities (1)
- can be produced faster (1)

AND

One from disadvantages:

- susceptible to a disease (1)
- can't survive an environmental change (1)
- reduced gene pool (1)

Q7.(2024)

A description including **three** from:

- select birds with highest egg production (1)
- breed (these birds) (1)
- select / breed birds (with best traits) from these offspring (1)
- repeat over many generations (1)